

ORDER NO. EMID0003001C0

A5

PCM KEYBOARD

SX-KC600

(P) U.S.A.

(PC) Canada

(PY) Mexico

**(EX) Norway, Sweden, Denmark, Finland, Spain, Portugal, Greece,
South Africa**

(EF) France

(EZ) Germany

(EG) Switzerland, Italy, Austria, Holland, Belgium

(EP) Russia

(EB) the United Kingdom

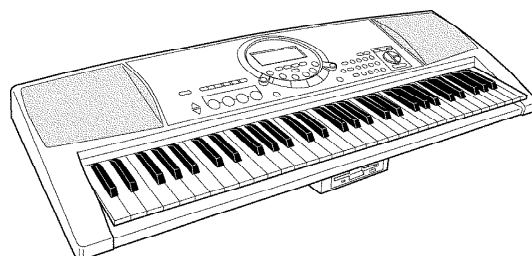
(GN) Australia, New Zealand

(XS) Malaysia, Singapore

(XT) Taiwan

**(X) Thailand, Indonesia, U.A.E., Columbia, Panama, Chile, Brazil,
Philippines**

(XA) Argentina
(XD) Saudi Arabia, Hong, Kong, Kuwait
(XC) China



SPECIFICATIONS

SPECIFICATIONS

KEYBOARD	61 KEYS (WITH INITIAL TOUCH)
SOUND GENERATOR	PCM
MAX. POLYPHONY	32 NOTES
SOUNDS	250 SOUNDS
EFFECT	TOUCH, SUSTAIN, REVERB, CHORUS
HARMONY	14 TYPES
TRANSPOSE	G - C - F#
RHYTHMS	100 RHYTHMS WITH VARIATION
RHYTHM CONTROL	SYNCHRO START, START/STOP, INTRO/ENDING, COUNT INTRO, FILL IN 1, FILL IN 2, TEMPO
XBS	Supported
PERFORMANCE PADS	4 PADS, 6 BANKS
PANEL MEMORY	10 MEMORIES
AUTO PLAY CHORD	MODE: ONE FINGER, FINGERED, PIANIST
MUSIC TRAINER	BEAT MASTER, CHORD FINDER, PIANO STYLIST, SOLO PIANO, MINUS ONE, DISK SONG
SONG	PLAY, REC 4 TRACKS: RIGHT 1, RIGHT 2, LEFT, CHORD STORAGE CAPACITY: APPROX. 4500 NOTES 4 MODES: EASY REC, MELODY, APC REAL, APC STEP
DISK DRIVE	3.5 inch FLOPPY DISK DRIVE for 2HD (1.44MB), 2DD (720KB) DIRECT PLAY (GM/SMF), SONG LOAD/SAVE, DELETE, FORMAT
CONTROL	MAIN VOLUME, APC/SONG VOLUME, ONE TOUCH PLAY, EXECUTE, MENU, CONDUCTOR

DISPLAY	CUSTOM LCD (WITH BACKLIGHT)
DEMO	Supported
TERMINALS	MIDI IN, MIDI OUT, FOOT SW, PHONES/LINE OUT, AUX IN
OUTPUT	10 W (5 W × 2)
SPEAKERS	12 cm × 2
POWER REQUIREMENT	DC IN 12 V (WITH EXCLUSIVE AC ADAPTOR)
POWER CONSUMPTION	6.6 W (WHEN POWER IS OFF BY THE PLAY BUTTON: 2 W)
DIMENSIONS (W×H×D)	96.0 cm × 14.6 cm × 37.8 cm (37-25/32" × 5-3/4" × 14-7/8")
NET WEIGHT	5.9 kg (13.0 lbs)
ACCESSORIES	AC ADAPTOR, MUSIC STAND, SONG BOOK, SONG DISK

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Panasonic®

1. WARNING

To prevent the risk of fire, smoke, or electrical shock and to ensure safe operation, please be sure to follow the safety guidelines below.

1. At places where special caution is required, the necessary safety precautions are clearly labeled or printed, for example, on the cabinet, or on the part concerned. Please follow these safety precautions, and also those listed in the Owner's Manual.
2. Parts which have a  mark in the circuit diagram or in the parts

list are essential for safety. When replacing these parts, be sure to use only the specified parts.

3. Use the specified types for internal wiring (double-insulated wiring, etc.).
4. When replacing parts on the AC primary side (power transformer, electric switch, electrical cord, noise-prevention condenser, etc.), wind the lead wire and secure it by soldering.
5. Do not let the wiring come into contact with heat-emitting devices (fuse resistor, radiator plate, etc.).
6. When replacing the wiring, make sure that it is not in contact with the unfinished or rough edge of a part.
7. When replacing the power cord (except for the plug-in type), tug it from various directions to confirm that it does not slip out of place.

8. Spacing

If soldering was done on the AC primary circuit, confirm that the interval between the soldered terminals or between the terminal and surrounding metallic parts is at least the minimum required (between the primary circuit and the chassis: at least 6.5 mm; between primary circuit terminals: at least 4.0 mm; between primary circuit terminals and secondary circuit terminals: at least 6.5 mm.).

2. SAFETY PRECAUTION

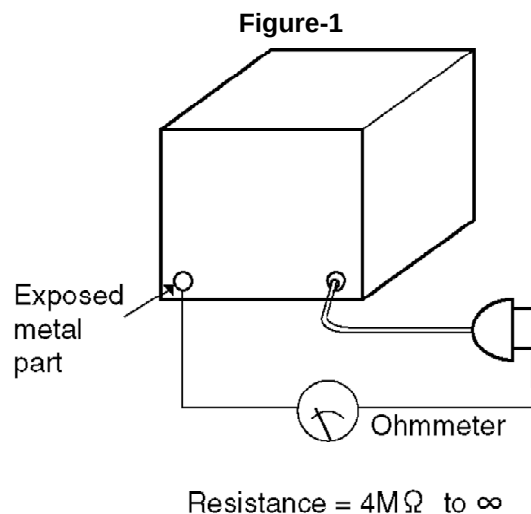
2.1. Safety precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure

to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

2.2. Insulation resistance test

1. Unplug the power cord and short the prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc. Measurements should range from 4 MOhm to infinity for all exposed parts.

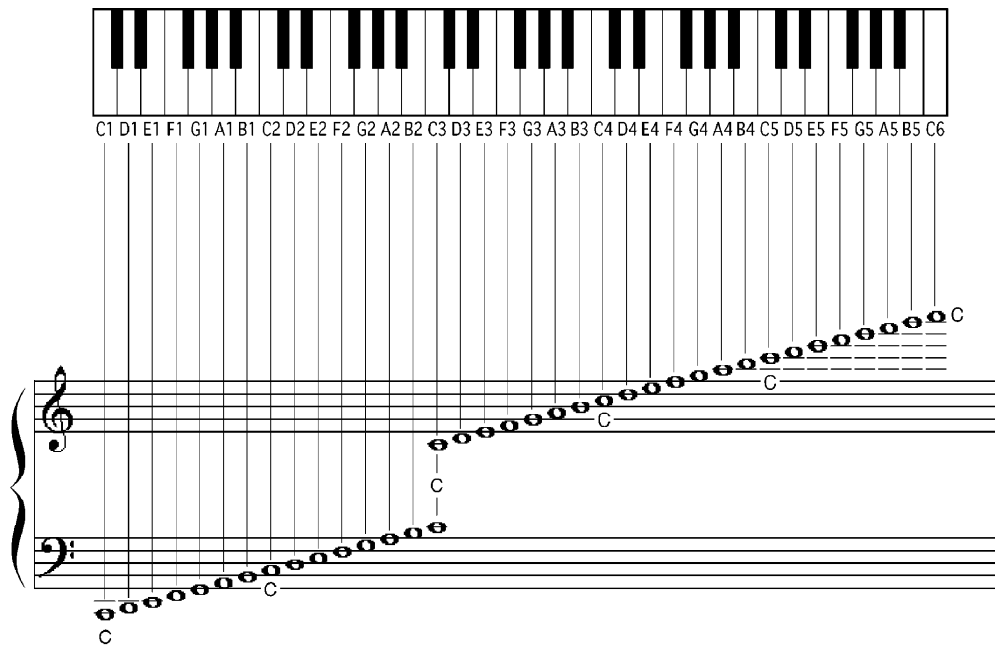


3. OWNERS MANUAL

4. KEYBOARD RANGES

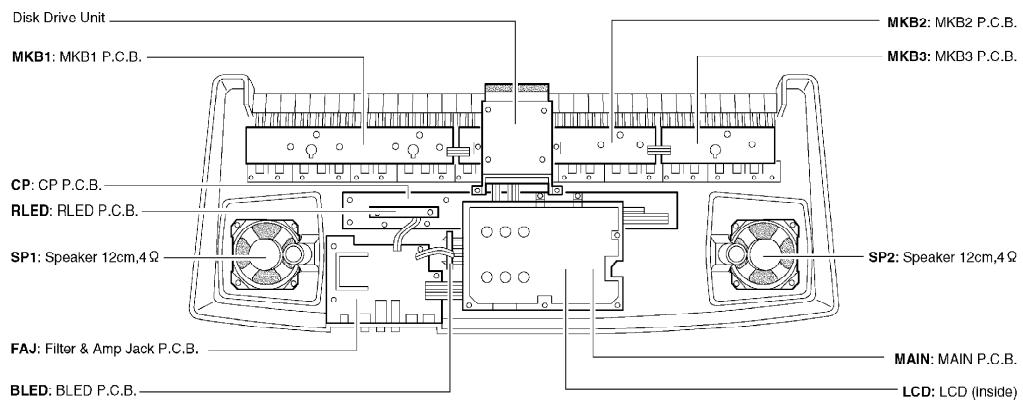
This keyboard features Touch Response, by which you control the volume by playing the keys harder or softer.

Figure-2



5. PARTS LOCATION

Figure-3

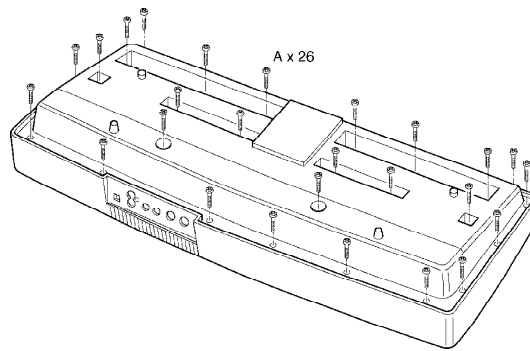


6. DISASSEMBLY INSTRUCTIONS

6.1. Opening the top cabinet

1. Turn the keyboard cabinet upside down, and remove the bottom screws (A 26 pcs.) as shown in **Figure-4**.
2. Place the keyboard bottom side down, and open the top cabinet.

Figure-4



6.2. Removing the MAIN and FAJ P.C.B.s

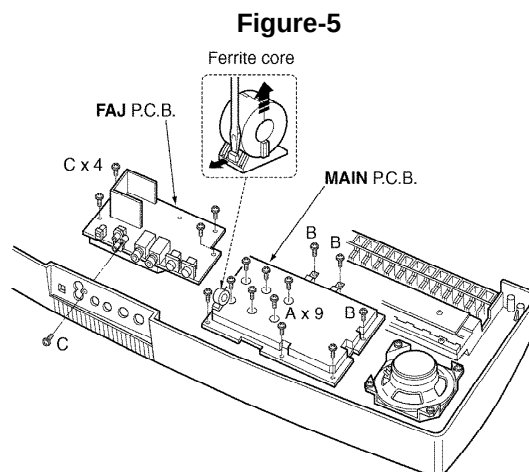
- Open the top cabinet (see step “**Opening the top cabinet**”).
- Pull out the connectors on the printed circuit boards.

MAIN P.C.B.

- Remove the MAIN P.C.B. mounting screws (A 9 pcs. and B 3 pcs.) as shown in **Figure-5**.
- To remove the ferrite core, release the claw and lift it upwards.
- When installing the MAIN P.C.B., first affix the B screws (3 pcs.) to facilitate correct positioning

FAJ P.C.B.

- Remove the FAJ P.C.B. mounting screws (C 5 pcs.) as shown in **Figure-5**.



6.3. Removing the LCD, CP, BLED and RLED P.C.B.s

- Remove the MAIN P.C.B. (see step “**Removing the MAIN and FAJ P.C.B.s**”).

LCD

- Remove the LCD.

RLED P.C.B.

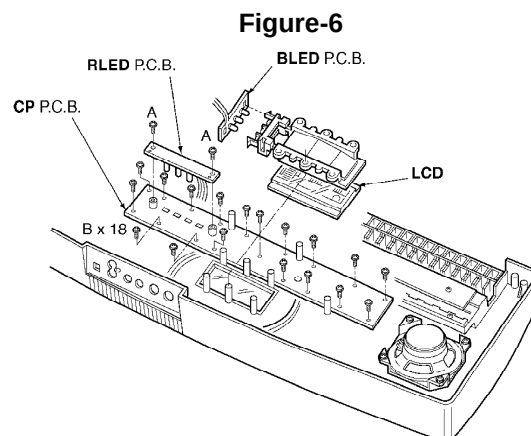
- Remove the RLED P.C.B. mounting screws (A 2 pcs.) as shown in [Figure-6](#).

BLED P.C.B.

- Release the claws and remove the BLED P.C.B. as shown in the [Figure-6](#).

CP P.C.B.

1. Remove the RLED P.C.B. (see "[RLED P.C.B.](#)" above).
2. Remove the CP P.C.B. mounting screws (B 18 pcs.) as shown in [Figure-6](#).



6.4. Removing the Disk Drive Unit and speakers

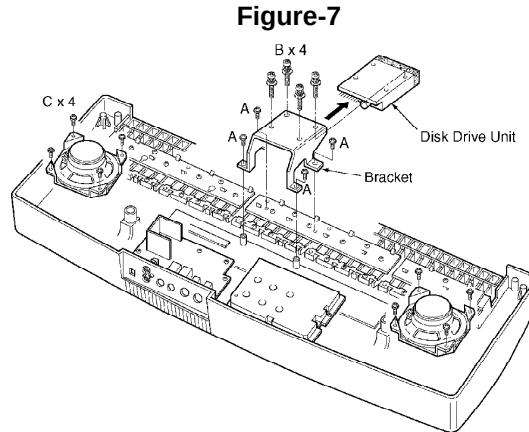
- Open the top cabinet (see step "[Opening the top cabinet](#)").

Disk Drive Unit

1. Remove the bracket mounting screws (A 4 pcs.) as shown in [Figure-7](#).
2. Remove the Disk Drive Unit mounting screws (B 4 pcs.).

Speakers

- Remove the speaker mounting screws (C 4 pcs.) as shown in **Figure-7**.



6.5. Removing the MKB1, MKB2 and MKB3 P.C.B.s

- Open the top cabinet (see step “**Opening the top cabinet**”).

MKB1 P.C.B.

1. Remove the MKB1 P.C.B. mounting screws (A 3 pcs.) as shown in **Figure-8**.
2. Release the claws and remove the MKB1 P.C.B.

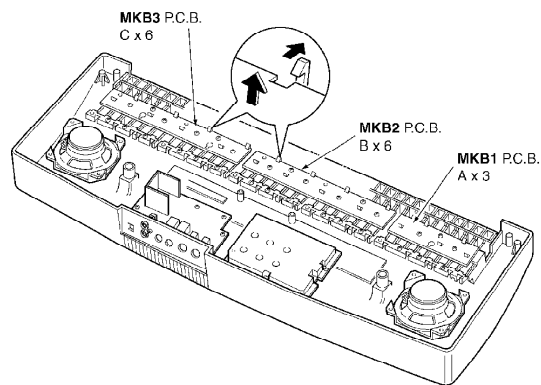
MKB2 P.C.B.

1. Remove the MKB2 P.C.B. mounting screws (B 6 pcs.) as shown in **Figure-8**.
2. Release the claws and remove the MKB2 P.C.B.

MKB3 P.C.B.

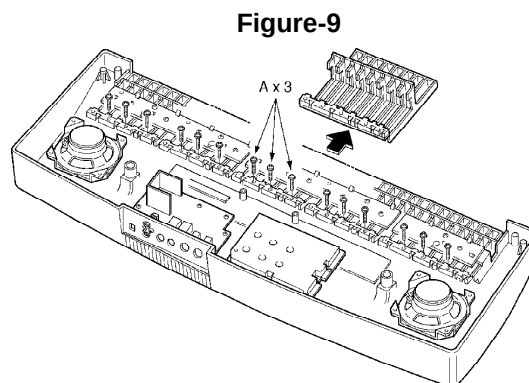
1. Remove the MKB3 P.C.B. mounting screws (C 6 pcs.) as shown in **Figure-8**.
2. Release the claws and remove the MKB3 P.C.B.

Figure-8



6.6. Removing the key sets

1. Open the top cabinet (see step “**Opening the top cabinet**”).
2. Remove the key set mounting screws (A 3 pcs. for each key set) as shown in **Figure-9**.
3. Remove the key set.



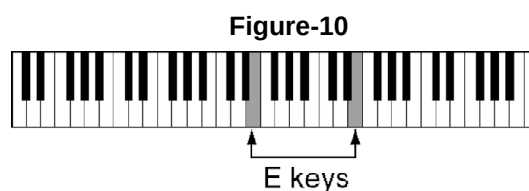
7. SELF-DIAGNOSTIC FUNCTIONS

The self-diagnostic functions make it possible to determine whether the various test modes pass or fail. The test modes are completely independent of one another. Select a test mode as necessary, and run the test.

- Before performing the test using the sine wave, adjust the volume to the appropriate level.

7.1. SOUND SYSTEM test

1. Press and hold the two E keys shown below, and then turn on the power switch.



2. Use the numeric button in the Number buttons to select an item from 0 to 5. Press a keyboard key.

0: FULL w/o

Generate a full amplitude sine wave in the pitch of each key.
(Without touch, fixed stereo center).

If no sound is generated or if the sound is distorted, the sound generator ROM corresponding to the key position is defective.

1: OUTSEL

For confirming the output pathway from the sound generator.
(Fixed scale, no touch)

The L ch (C key) and R ch (C#-B keys) sound outputs are confirmed separately.

2: +2 OCT

Generate a full amplitude sine wave in the pitch of each key +2 octaves. (Without touch, fixed stereo center)

By generating a sound frequency outside the normal keyboard zone, you can confirm whether or not there is an abnormality in the sound output frequency zone.

3: -2 OCT

Generates a full amplitude sine wave in the pitch of each key -2 octaves. (Without touch, fixed stereo center)

By generating a sound frequency outside the normal keyboard zone, you can confirm whether or not there is an abnormality in the sound output frequency zone.

4: NORMAL w

Generate a sine wave in the pitch of each key with touch.
You can confirm if the volume changes depending on the touch.

5: -16dB

Generate a full amplitude sine wave in the pitch of each key at a -16 dB volume. (Without touch, fixed stereo center)

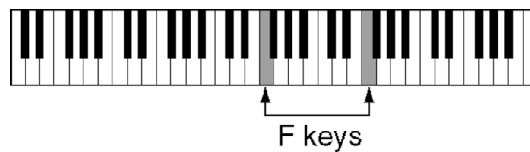
You can confirm the same sound output as in 0:FULL w/o, at a lower volume.

7.2. Panel SW & LED test

1. Press and hold the two F keys shown below, and then turn on the

power switch. "SW & LED" is displayed on the LCD.

Figure-11



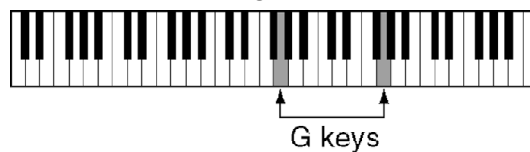
2. Press all the buttons on the Control Panel and confirm that all the PERFORMANCE PADS LEDs light and sine wave is produced.

- If an LED fails to light or no sound is produced, the cause may be a defective switch or a break in the surrounding circuit, etc.
- After all the buttons (except PLAY) have been pressed, all the PERFORMANCE PADS LEDs blink several times.

7.3. LCD module test

1. Press and hold the two G keys shown below, and then turn on the power switch.

Figure-12



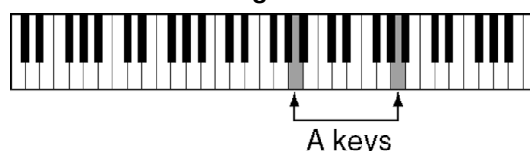
2. All the dots light on and off three times. All characters are displayed in the text display area.

- If the correct display is not shown during these tests, the LCD or LCD drive circuit may be defective.

7.4. Floppy Disk Controller test

- Press and hold the two A keys shown below, and then turn on the power switch.

Figure-13



- The test result (0:OK, 1:NG) and "FDCcheck" is displayed.

7.5. Floppy Disk SAVE/LOAD test

1. Insert a formatted floppy disk into the Disk Drive.

2. Press and hold the two B keys shown below, and then turn on the power switch.
3. Press the EXECUTE button to begin the test.
4. The test is carried out repeatedly. Data is saved and loaded, and then the two data sets are compared. The number of times that the test results in OK or NG are counted and displayed on the LCD. To interrupt the test, press the EXECUTE button while the "EXECUTE" display is blinking.

- Even when the Floppy Disk Drive is functioning properly, the test can result in NG. If this happens frequently, clean the magnetic heads of the Floppy Disk Drive with a cleaning disk. Then, change the disk used in testing with another disk and reperform the test. If the trouble is not solved, it is likely that the Disk Drive unit or some other part of the hardware is broken.

8. PRECAUTIONS BEFORE SERVICING

8.1. Precautions for measuring of the output waveforms

1. The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may differ somewhat due to the difference in the timing of triggering.
2. Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform illustration is 1/10 of the actual value (e.g. 0.2 V/cm should be 2.0 V/cm).
3. To measure the waveforms, first set this unit to the service diagnostic mode (refer to "SOUND SYSTEM test" on SOUND SYSTEM test). The WAVE ROM output will then be output as a sine wave to facilitate the servicing check.

8.2. Important safety notice

- Components identified by a  mark have special characteristics important for safety.
- When replacing any of these components, use only manufacture's specified parts.

8.3. Symbolic marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following [Table-1](#) and [Table-2](#).

8.3.1. Resistors

- Resistors without symbolic mark are **FIXED CARBON FILM RESISTORS (ERD-type)**.
- All resistors are **1/4 WATT, ± 5 % TOLERANCE** unless otherwise designated in schematic diagrams.

Table-1

SYMBOL	SPECIFICATION
	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)
	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)
	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)
	Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)
	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
	Fuse Type Fixed Carbon Film Resistors "FLAME-PROOF" (ERD2FC—type)

8.3.2. Capacitors

- Capacitors without symbolic mark are **POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ± 10 % Tolerance)**
- Polarized capacitors without symbolic mark are **Aluminum Electrolytic Capacitors. (ECEA-type, ± 20 % Tolerance)**

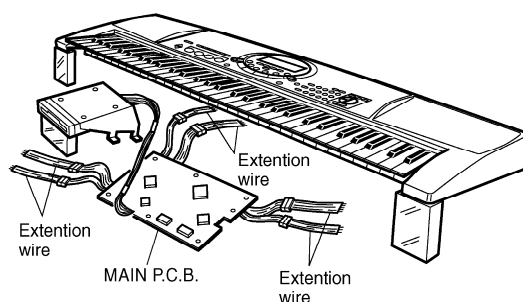
Table-2

SYMBOL	SPECIFICATION	TYPE
	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
	Non-Polarized Electrolytic (for Network system)	ECEA_Y_type
	Tantalum Solid Electrolytic Capacitors	ECS_type
	Metallized Plastic Film Capacitors (TF Series)	ECQV_type
	Temperature Compensating Ceramic Capacitors	ECC_type
	High-Dielectric Constant Ceramic Capacitors	ECK_type, ECR_type
	Axial Lead Ceramic Capacitors	ECB_type
	Metallized Polyester Film Capacitors for Across the Line	ECQ_EW_type
	Aluminum Electrolytic Capacitors for Smoothing Circuit	ECES_type
	Multilayer Ceramic Chip Capacitors	ECUV_type

9. CHECKING THE MAIN P.C.B.

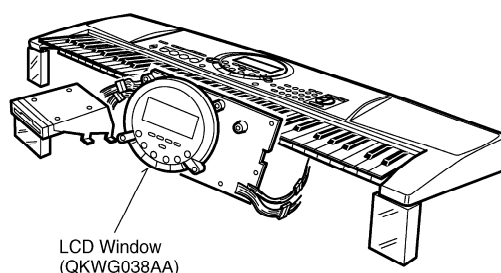
1. Open the top cabinet (refer to “[Opening the top cabinet](#)” on [Opening the top cabinet](#)).
2. Remove the MAIN P.C.B. (refer to “[Removing the MAIN and FAJ P.C.B.s](#)” on [Removing the MAIN and FAJ P.C.B.s](#)).
3. Remove the Disk Drive unit (refer to “[Removing the Disk Drive Unit and speakers](#)” on [Removing the Disk Drive Unit and speakers](#)).
4. Remove the LCD (refer to “[Removing the LCD, CP, BLED and RLED P.C.B.s](#)” on [Removing the LCD, CP, BLED and RLED P.C.B.s](#)).
5. Connect the MAIN P.C.B. to the original circuit with the extension wires (RFKZ0091) as shown in [Figure-14](#).
6. Lift and hold the top cabinet by inserting some cigarette case size objects beneath as shown in [Figure-14](#).

Figure-14



- When checking LCD, install the LCD Window (QKWG038AA) as shown in **Figure-15**.

Figure-15



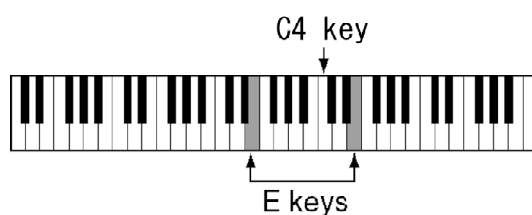
10. MEASURING CONDITION

10.1. Measuring condition of MAIN P.C.B.

Check Point 2 - 5

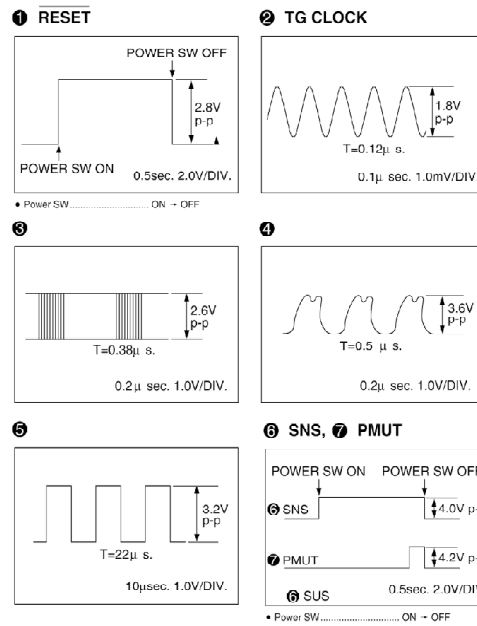
Set to the Self-diagnostic Mode followings.

- While pressing two E keys simultaneously, turn on the power switch.
- MAIN VOLUME: Max.
- Keyboard: C₄



Check Point 1, 6 and 7

Set to the Initial mode (refer to "**OWNERS MANUAL**").

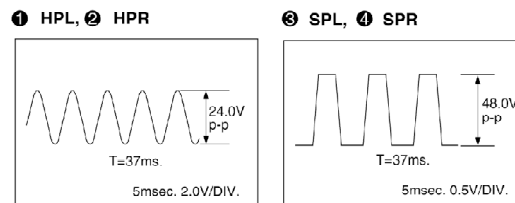
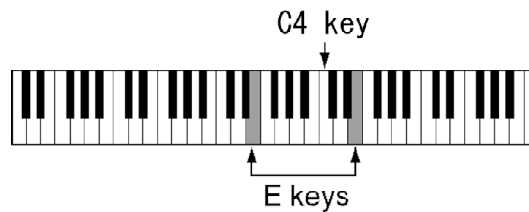


10.2. Measuring condition of FAJ P.C.B.

Check Point 1 - 4

Set to the Self-diagnostic Mode followings.

- While pressing two E keys simultaneously, turn on the power switch.
- MAIN VOLUME: Max.
- Keyboard: C₄



11. SCHEMATIC DIAGRAM

12. PRINTED CIRCUIT BOARD

12.1. MAIN,FAJ P.C.B.

12.2. MKB1,MKB2,MKB3,BLED,RLED,CP P.C.B.

13. BLOCK DIAGRAM

14. WIRING CONNECTION DIAGRAM

15. REPLACEMENT PARTS LIST

Notes:

*Important safety notice:

Components identified by  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

*Warning: This product uses a laser diode. Refer to caution statements.

***ACHTUNG:** Die lasereinheit nicht zerlegen. Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

*Capacity values are in microfarads (uF) unless specified otherwise. P=Pico-farads (pF), F= farads (F)

*Resistance values are in ohms, unless specified otherwise. 1K=1,000 (OHM), 1M=1,000K (OHM)

*The marking <RTL> indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

*"<IA>"-"<IH>" marks in Remarks indicate languages of instruction manuals. [<IA>: Dansk, <IB>: English, <IC>: English, <ID>: French, <IE>: Germany, <IF>: Italiano, <IG> : Espanol, <IH>: Nederlands]

*MAIN, FAJ, BLED, RLED, MKB1, MKB2 MKB3 and CP in Remarks indicate the Circuits and P. C. B.s. If the same Ref. No. is found in the replacement parts list, check those indications in the Remarks.

*[M] indicate in Remarks columns parts that are supplied by MESA.

*(M) indicate in Remarks columns parts that are supplied by EMID.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
<u>1</u>	QGGP0148AA	CONTROL PANEL	1	[M]
<u>2</u>	QGMG0026AA	PUNCHING NET(L/R)	2	[M]
<u>3</u>	SHSG1970A	KEY FELT(UPPER/LOW)	2	(E)
<u>4</u>	QMWG6014CAK	KEY SWITCH(13KEY)	1	(E)
<u>5</u>	QMWG6015CAK	KEY SWITCH(12KEY)	4	(E)
<u>6</u>	QMRG1034AA	BACKLIGHT COVER	1	[M]
<u>7</u>	QMG064AA	RUBBER CONTACT	2	[M]
<u>8</u>	QSLG026AA	LCD	1	[M]
<u>9</u>	QMRG1032AA	BACK LIGHT COVER	1	[M]
<u>10</u>	QMRG2096AA	LIGHT SPREAD SHEET	1	[M]
<u>11</u>	QGGP0149AA	LCD PANEL	1	[M]
<u>12</u>	QKWG038AA	LCD WINDOW	1	[M]
<u>13</u>	RFKJXKC600-P	BOTTOM CABINET ASS'Y	1	P ONLY[M]
13	RFKJXKC600PC	BOTTOM CABINET ASS'Y	1	EXCEPT P,PY[M]
13	RFKJXKC600PY	BOTTOM CABINET ASS'Y	1	PY ONLY[M]
<u>14</u>	QGUG1487AA	BUTTON A	1	[M]
<u>15</u>	QGUG1488AA	BUTTON B	1	[M]
<u>16</u>	QGUG1489AA	BUTTON C	1	[M]
<u>17</u>	QGUG1490AA	BUTTON D	1	[M]
<u>18</u>	QGUG1491AA	BUTTON E	1	[M]
<u>19</u>	QGUG1492AA	BUTTON F	1	[M]
<u>20</u>	QGUG1493AA	BUTTON G	1	[M]
<u>21</u>	QGUG1494AA	BUTTON H	1	[M]
<u>22</u>	QMRG5218AA	LEG FELT	4	[M]
<u>23</u>	QAUG027AA	FDD UNIT	1	(E)
<u>24</u>	QMRG7116AA	FD COVER	1	[M]
<u>25</u>	QMRG1033AA	LIGHTTING CHIP	1	[M]
<u>26</u>	QEXGVH0260C	SPEAKER WIRE(R)	1	[M]
<u>27</u>	QEXGZA34040A	CONNECTOR WIRING	1	[M]
<u>28</u>	RMRG2099AA	REFLECTION SHEET	1	[M]
<u>29</u>	QASG12P08A	SPEAKER UNIT	2	[M]
<u>32</u>	QLZG004A	CORE	1	(E)
<u>33</u>	QMRG1035AA	CORE SUPORT	1	[M]
34	XYN3+F6	SCREW	4	(E)
35	XTB3+10JFZ	SCREW	22	(E)
36	XTB3+20JFZ	SCREW	41	[M]
37	XTBS26+10J	SCREW	32	(E)
<u>38</u>	QGNKGK600AA	NAME PLATE	1	GN[M]
38	QGNKGK600CA	NAME PLATE	1	PC[M]
38	QGNKGK600DA	NAME PLATE	1	XD,XA[M]
38	QGNKGK600EA	NAME PLATE	1	EX ,EZ, EG ,EF[M]
38	QGNKGK600KA	NAME PLATE	1	EB[M]
38	QGNKGK600RA	NAME PLATE	1	EP[M]
38	QGNKGK600SA	NAME PLATE	1	X,XS,XT[M]
38	QGNKGK600TA	NAME PLATE	1	XC[M]
<u>39</u>	QMWG1030AAK	WHITE KEY(4KEY)	5	[M]
<u>40</u>	QMWG1031AAK	WHITE KEY(3KEY)	4	[M]
<u>41</u>	QMWG2004AAK	BLOCK KEY(5KEY)	5	[M]
<u>42</u>	QMWG1031BAK	WHITE KEY(5KEY)	1	[M]
<u>43</u>	QMRG5226AA	URETHAN TAPE	1	[M]
<u>44</u>	QMRG5227AA	URETHAN TAPE	1	[M]
<u>45</u>	QGAG2017AA	MUSIC RACK	1	[M]
<u>46</u>	QPFG083AA	MUSIC RACK BAG	1	[M]
<u>47</u>	QFAG028AA	AC ADAPTOR	1	 P,PC,PY[M]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
47	QFAG029AA	AC ADAPTOR	1	△ EB[M]
47	QFAG030AA	AC ADAPTOR	1	△ EX, EZ, EG ,EF[M]
47	QFAG031AA	AC ADAPTOR	1	GN[M]
47	QFAG032AA	AC ADAPTOR	1	△ X,XS,XT[M]
47	QFAG038AA	AC ADAPTOR	1	△ XD[M]
47	QFAG039AA	AC ADAPTOR	1	△ XA[M]
47	QFAG040AA	AC ADAPTOR	1	△ XC[M]
47	QFAG041AA	AC ADAPTOR	1	△ EP[M]
48	QQTG0547A	SONG BOOK	1	[M]
49	QFVG2025A	FD	1	[M]
50	QQTG0529A	INSTRUCTION MANUAL	1	P[M]
50	QQTG0530A	INSTRUCTION MANUAL	1	PY, EX ,X, XA[M]
50	QQTG0531A	INSTRUCTION MANUAL	1	PC,PY,EX,EB,X,GN,XS,XD, XT[M]
50	QQTG0531A	INSTRUCTION MANUAL	1	XA, XC, EP[M]
50	QQTG0532A	INSTRUCTION MANUAL	1	PC ,EG ,EF[M]
50	QQTG0533A	INSTRUCTION MANUAL	1	EZ,EG[M]
50	QQTG0534A	INSTRUCTION MANUAL	1	EG[M]
50	QQTG0535A	INSTRUCTION MANUAL	1	XD,XC[M]
50	QQTG0536A	INSTRUCTION MANUAL	1	EP[M]
50	QQTG0537A	INSTRUCTION MANUAL	1	XT[M]
51	QQCG0374A	REFERENCE GUIDE	1	[M]
52	RQCB0831	SERVICE CENTER LIST	1	P ONLY[M]
53	RQX7433ZA	WARRANTY CARD	1	GN ONLY[M]
53	QQAG016A	WARRANTY CARD	1	P ONLY[M]
54	QQCG0373A	USER CARD	1	P ONLY[M]
55	QQFG088AA	FAN BAG	1	[M]
56	QPGG0467AA	CARTON BOX	1	[M]
56	QPGG0467AB	CARTON BOX	1	XC ONLY[M]
57	QPNG0754AA	CUTTION(L)	1	[M]
58	QPNG0755AA	CUTTION(R)	1	[M]
59	QPGG0469AA	MUSIC RACK PAT	1	[M]
60	QPHG080AAK	MIRAMAT(BAG)	1	[M]
61	SJP5213-2	ATTACHMENT PULAG	1	△ X, XT ONLY(E)
62	QQAG018A	REQUEST WARRANTY CARD	1	EB ONLY[M]
63	QHKG064AA	SCREW	9	[M]
64	XYE3+FG12	SCREW	6	(E)
65	SUWG219	CRAMPER	1	(E)
C1	ECEA1CKN100B	16V 10U	1	FAJ[M]
C1	ECUV1H471JCN	470PF	1	MAIN[M]
C2	ECEA1CKN100B	16V 10U	1	FAJ[M]
C2	ECUV1H471JCN	470PF	1	MAIN[M]
C3	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C3	ECKR1H223ZF5	0.022U	1	MKB1[M]
C3	ECUV1H471JCN	470PF	1	MAIN[M]
C4	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C4	ECKR1H223ZF5	0.022U	1	MKB2[M]
C5	ECKR1H223ZF5	0.022U	1	MKB2[M]
C6	ECEA0JKA470E	E-CAP	1	MKB2(E)
C7	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C8	ECEA1CKN100B	16V 10U	1	FAJ[M]
C8	ECUV1H471JCN	470PF	1	MAIN[M]
C9	ECQB1H473JF3	50V 0.047U	1	FAJ[M]
C9	ECUV1H471JCN	470PF	1	MAIN[M]
C10	ECCR1H221J5	220PF	1	MKB1[M]
C10	ECEA1CKN100B	16V 10U	1	FAJ[M]
C11	ECCR1H221J5	220PF	1	MKB1[M]
C11	ECQB1H473JF3	50V 0.047U	1	FAJ[M]
C12	ECCR1H221J5	220PF	1	MKB1[M]
C12	ECEA1CKA470B	16V 47UF	1	FAJ[M]
C13	ECCR1H221J5	220PF	1	FAJ[M]
C13	ECUV1H100DCN	10PF	1	MAIN(E)
C13	ECCR1H221J5	220PF	1	MKB1[M]
C14	ECCR1H221J5	220PF	1	MKB1[M]
C14	ECQB1H103JF3	50V 0.1U	1	FAJ[M]
C14	ECUV1H563KBN	0.056U	1	MAIN[M]
C15	ECCR1H221J5	220PF	1	MKB1[M]
C15	ECQB1H682JF3	50V 6800P	1	FAJ[M]
C15	ECUV1H563KBN	0.056U	1	MAIN[M]
C16	ECCR1H221J5	220PF	1	MKB1[M]
C16	ECQB1H682JF3	50V 6800P	1	FAJ[M]
C16	ECUV1H563KBN	0.056U	1	MAIN[M]
C17	ECCR1H221J5	220PF	1	MKB1[M]
C17	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C17	ECUV1H563KBN	0.056U	1	MAIN[M]
C18	ECEA1CKA470B	16V 47UF	1	FAJ[M]
C18	ECEA1HKA010B	50V 1U	1	MAIN[M]
C19	ECCR1H221J5	220PF	1	FAJ(E)
C20	ECCR1H221J5	220PF	1	FAJ[M]
C19	ECUV1H100DCN	10PF	1	MAIN[M]
C20	ECUV1H101JCN	50V 100P	1	MAIN[M]
C20	ECCR1H221J5	220PF	1	MKB2[M]
C21	ECCR1H221J5	220PF	1	MKB2[M]
C21	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C21	ECUV1H101JCN	50V 100P	1	MAIN[M]
C22	ECCR1H221J5	220PF	1	MKB2[M]
C22	ECCR1H470J5	47PF	1	FAJ(E)
C22	ECUV1H101JCN	50V 100P	1	MAIN[M]
C23	ECCR1H221J5	220PF	1	MKB2[M]
C23	ECCR1H470J5	47PF	1	FAJ(E)
C23	ECUV1H101JCN	50V 100P	1	MAIN[M]
C24	ECCR1H221J5	220PF	1	MKB2[M]
C24	ECUV1H101JCN	50V 100P	1	MAIN[M]
C25	ECCR1H221J5	220PF	1	MKB2[M]
C25	ECUV1H563KBN	0.056U	1	MAIN[M]
C26	ECCR1H221J5	220PF	1	MKB2[M]
C26	ECEA0JKA470B	E-CAP	1	MAIN[M]
C27	ECCR1H221J5	220PF	1	MKB2[M]
C27-30	ECUV1H563KBN	0.056U	4	MAIN[M]
C32	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C32	ECUV1H100DCN	10PF	1	MAIN(E)
C33	ECEA1HKA010B	50V 1U	1	FAJ[M]
C33	ECUV1H104KBN	0.1U	1	MAIN[M]
C34	ECA1EM470B	47UF 25V	1	FAJ[M]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C34	ECUV1H563KBN	0.056U	1	MAIN[M]
C35	ECA1EM470B	47UF 25V	1	FAJ[M]
C35	ECUV1H563KBN	0.056U	1	MAIN[M]
C36	ECEA1HKA010B	50V 1U	1	FAJ[M]
C37	ECA1EM101B	25V 100U	1	FAJ[M]
C37	ECEA0JKA470B	E-CAP	1	MAIN[M]
C38	ECEA1CKA100B	16V 10U	1	FAJ[M]
C38	ECUV1H563KBN	0.056U	1	MAIN[M]
C39	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C39	ECUV1H563KBN	0.056U	1	MAIN[M]
C40	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C40	EECF5R5U105	E-CAP	1	MAIN(E)
C41	ECA0JM221B	E-CAP	1	MAIN(E)
C42	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C42	ECUV1H563KBN	0.056U	1	MAIN[M]
C43	ECEA1CKA100B	16V 10U	1	FAJ[M]
C43,44	ECUV1H333KBN	0.022U	2	MAIN[M]
C45	ECUV1H472KBN	50V 4700P	1	MAIN[M]
C46	ECEA1HKN010B	50V 1UF	1	FAJ[M]
C46	ECUV1H182JX	1800PF	1	MAIN(E)
C47	ECEA1HKN010B	50V 1UF	1	FAJ[M]
C47	ECUV1H223KBN	0.022U	1	MAIN[M]
C48	ECFR1E104ZF5	25V 0.1U	1	FAJ[M]
C48,49	ECUV1H563KBN	0.056U	2	MAIN[M]
C50	ECA1EM332E	3300U 25V	1	FAJ[M]
C50	ECEA0JKA470B	E-CAP	1	MAIN[M]
C51,52	ECEA0JKA101B	6.3V 100U	2	MAIN[M]
C53	ECBT1H221KB	220PF	1	FAJ(E)
C53	ECEA0JKA470B	E-CAP	1	MAIN[M]
C54	ECUV1H221KBN	CAPACITOR	1	MAIN[M]
C55,56	ECUV1H563KBN	0.056U	2	MAIN[M]
C57,58	ECUV1H030CCN	3PF	2	MAIN(E)
C59	ECUV1H563KBN	0.056U	1	MAIN[M]
C68	ECA0JM102B	6.3V 1000U	1	FAJ[M]
CN1	RJS1A5207	CONNECTOR(7P)	1	MKB2[M]
CN2	RJS1A5212	CONNECTOR	1	CP[M]
CN3	SJPG2JS150A	CONNECTOR	1	MAIN[M]
CN4	RJS1A5210	CONNECTOR(10P)	1	FAJ[M]
CN5	RJS1A5212	CONNECTOR	1	FAJ[M]
CN6	RJS1A5210	CONNECTOR(10P)	1	MKB2[M]
CN7	RJS1A5208	CONNECTOR	1	CP[M]
CN9,10	RJS1A5208	CONNECTOR	2	MKB3[M]
CN11	RJS1A5210	CONNECTOR(10P)	1	MKB1[M]
CN12	RJS1A5209	CONNECTOR	1	MKB1[M]
CN17	RJT029W02V-1	EH CONNECTOR	1	FAJ[M]
D1	RVD1SS133TA	DIODE	1	FAJ[M]
D1	RVD1SS133TA	DIODE	1	MKB1[M]
D2	MA111TX	DIODE	1	MAIN[M]
D2	RVD1SS133TA	DIODE	1	MKB1[M]
D3	MA8030H	ZENER	1	MAIN(E)
D3	RVD1SS133TA	DIODE	1	FAJ[M]
D3	RVD1SS133TA	DIODE	1	MKB1[M]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D4	EK04W	ZENER DIODE	1	FAJ(E)
D4	MA111TX	DIODE	1	MAIN[M]
D4	RVD1SS133TA	DIODE	1	MKB1[M]
D5	RVD1SS133TA	DIODE	1	FAJ[M]
D5	RVD1SS133TA	DIODE	1	MKB1[M]
D6	MA4033MTA	ZENER DIODE	1	FAJ[M]
D6	RVD1SS133TA	DIODE	1	MKB1[M]
D7	MA1056MTR	ZENER	1	MAIN[M]
D7	RVD1SS133TA	DIODE	1	FAJ[M]
D7	RVD1SS133TA	DIODE	1	MKB1[M]
D8	MA111TX	DIODE	1	MAIN[M]
D8	RVD1SS133TA	DIODE	1	FAJ[M]
D8	RVD1SS133TA	DIODE	1	MKB1[M]
D9	MA111TX	DIODE	1	MAIN[M]
D9	RVD1SS133TA	DIODE	1	FAJ[M]
D9	RVD1SS133TA	DIODE	1	MKB1[M]
D10	MA111TX	DIODE	1	MAIN[M]
D10	MA4051LTA	DIODE	1	FAJ[M]
D10	RVD1SS133TA	DIODE	1	MKB1[M]
D11	MA111TX	DIODE	1	MAIN[M]
D11	RVD1SS133TA	DIODE	1	MKB1[M]
D12	MA111TX	DIODE	1	MAIN[M]
D12	RVD1SS133TA	DIODE	1	MKB1[M]
D12	RVD1SS133TA	DIODE	1	FAJ[M]
D13	1D3E	DIODE	1	FAJ[M]
D13	MA111TX	DIODE	1	MAIN[M]
D13	RVD1SS133TA	DIODE	1	MKB1[M]
D14	1D3E	DIODE	1	FAJ[M]
D14	MA111TX	DIODE	1	MAIN[M]
D14	RVD1SS133TA	DIODE	1	MKB1[M]
D15	MA111TX	DIODE	1	MAIN[M]
D15	RVD1SS133TA	DIODE	1	MKB1[M]
D15	RVD1SS133TA	DIODE	1	FAJ[M]
D16	MA111TX	DIODE	1	MAIN[M]
D16	RVD1SS133TA	DIODE	1	MKB1[M]
D17	MA111TX	DIODE	1	MAIN[M]
D17-20	RVD1SS133TA	DIODE	4	MKB1[M]
D20	TL0H156PJ52A	DIODE	1	BLED[M]
D21	RVD1SS133TA	DIODE	1	MKB1[M]
D21	TL0H156PJ52A	DIODE	1	BLED[M]
D22	RVD1SS133TA	DIODE	1	MKB1[M]
D22	TL0H156PJ52A	DIODE	1	BLED[M]
D23	RVD1SS133TA	DIODE	1	MKB1[M]
D23	SEL5255STP15	DIODE	1	RLED[M]
D24	RVD1SS133TA	DIODE	1	MKB1[M]
D24	SEL5255STP15	DIODE	1	RLED[M]
D25	RVD1SS133TA	DIODE	1	MKB1[M]
D25	SEL5255STP15	DIODE	1	RLED[M]
D26	RVD1SS133TA	DIODE	1	MKB1[M]
D26	SEL5255STP15	DIODE	1	RLED[M]
D27	RVD1SS133TA	DIODE	1	MKB1[M]
D27	RVD1SS133TA	DIODE	1	FAJ[M]
D28-48	RVD1SS133TA	DIODE	21	MKB1[M]
D49-96	RVD1SS133TA	DIODE	48	MKB2[M]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D97-22	RVD1SS133TA	DIODE	26	MKB3[M]
IC1	PC900V	PHOTO CPUPLER	1	FAJ[M]
IC1	SED1278F	ICLDC	1	MAIN[M]
IC1	TC74HC138P	CMOS IC	1	MKB1[M]
IC2	NJM4558L	OP AMP	1	FAJ[M]
IC2	TC74HC138P	CMOS IC	1	MKB2[M]
IC2	TMP95CW65DF	CPU	1	MAIN[M]
IC3	M51008CF70LL	1M SRAM	1	MAIN[M]
IC3	NJM4556AL	OP AMP	1	FAJ[M]
IC4	D97315GD201	D95MK2 LSI	1	MAIN(E)
IC4,C5	NJM4558	OP AMP	2	FAJ[M]
IC6	AN6913	COMPARATOR	1	FAJ(E)
IC6	D72070GF3BE	IC	1	MAIN(E)
IC7	LA4663	IC	1	FAJ[M]
IC8	M5256DF10VLL	256K SRAM	1	MAIN[M]
IC10	QSIGX3C16009	MASK ROM	1	MAIN[M]
IC11	BU9480F-E2	DAC	1	MAIN[M]
IC12	IMIFS781BZBD	SPECTRUM SPREAD IC	1	MAIN[M]
IC13	QSIGX3C16010	MASK ROM	1	MAIN[M]
IP1	ICP-N75T104	IC PROTECTOR	1	⚠ FAJ(E)
JK1	QJJG017AA	JACK PIN JACK	1	FAJ[M]
JK2,K3	QJJG020AA	JACK	2	FAJ[M]
JK5	QJJG019AA	JACK	1	FAJ[M]
JK6	QJJG015AA	JACK DC IN TYPE 4	1	⚠ FAJ[M]
JK12	QJJG018AA	JACK	1	FAJ[M]
JP5	ERJ6GEY0R00V	CHIP JUMPER	1	MAIN(E)
L1	BK2125LM152T	INDUCTOR	1	MAIN(E)
L1	QLQGT3T131LA	COIL	1	FAJ(E)
L2-L4	BK2125LM152T	INDUCTOR	3	MAIN(E)
L4	QLQGT3T131LA	COIL	1	FAJ(E)
L5	BK2125LM152T	INDUCTOR	1	MAIN(E)
L5	QLQGT3T131LA	COIL	1	FAJ(E)
L7	QLQGT3T131LA	COIL	1	FAJ(E)
L8	QLQGT1121LA	LINE FILTER	1	FAJ[M]
L9	QLQGT1T121LA	COIL	1	FAJ(E)
L11	QLQGT3T131LA	COIL	1	FAJ(E)
PCB1	SXPG234011	MAIN P.C.B.	1	Except P,PY[M]
PCB1	SXPG234021	MAIN P.C.B.	1	P,PY[M]
PCB2	SXPG234111	FAJ/BLED/RLED P.C.B.	1	[M]
PCB3	SXPG234811	CP P.C.B.	1	[M]
PCB4	SXPG234311	MKB1/2 P.C.B.	1	[M]
PCB5	SXPG234411	MKB3 P.C.B.	1	[M]
Q1	2SA1643	TRANSISTOR	1	FAJ(E)
Q1	2SD601AQ	TRANSISTOR	1	MAIN[M]
Q2	2SB709A-R	TRANSISTOR	1	MAIN[M]
Q2	2SC1815TPE2	TRANSISTOR	1	FAJ(E)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q3	2SA933STRS	TRANSISTOR	1	FAJ(E)
Q3,Q4	2SB709A-R	TRANSISTOR	2	MAIN[M]
Q4	2SC1815TPE2	TRANSISTOR	1	FAJ(E)
Q5	2SB621A-R	TRANSISTOR	1	FAJ[M]
Q5,Q6	2SB709A-R	TRANSISTOR	2	MAIN[M]
Q6,Q7	2SC1815TPE2	TRANSISTOR	2	FAJ(E)
Q7	2SD601AQ	TRANSISTOR	1	MAIN[M]
Q8	2SA933STRS	TRANSISTOR	1	FAJ(E)
Q9-11	2SC1815TPE2	TRANSISTOR	3	FAJ(E)
R1	ERDS2TJ104	1/10W 100K	1	MAIN[M]
R1	ERDS2TJ473T	1/4W 47K	1	FAJ[M]
R2	ERDS2TJ153T	1/4W 15K	1	FAJ[M]
R2	ERJ6GEYJ184V	1/10W 180K	1	MAIN[M]
R3	ERDS2TJ153T	1/4W 15K	1	FAJ[M]
R3	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R4	ERDS2TJ101T	1/4W 100	1	FAJ[M]
R4,R5	ERJ6GEYJ472V	1/10W 4.7K	2	MAIN[M]
R6	ERDS2TJ102T	1/4W 1K	1	FAJ[M]
R6	ERJ6GEYJ472V	1/10W 4.7K	1	MAIN[M]
R7	ERDS2TJ330T	1/4W 33	1	FAJ[M]
R7	ERJ6GEYJ472V	1/10W 4.7K	1	MAIN[M]
R8	ERDS2TJ104T	1/4W 100K	1	FAJ[M]
R8	ERJ6GEYJ472V	1/10W 4.7K	1	MAIN[M]
R9	ERDS2TJ680T	1/4W 68	1	FAJ[M]
R9	ERJ6GEYJ103V	1/10W 10K	1	MAIN[M]
R10	ERDS2TJ221T	1/4W 220	1	FAJ[M]
R10	ERJ6GEYJ103V	1/10W 10K	1	MAIN[M]
R11	ERDS2TJ473T	1/4W 47K	1	FAJ[M]
R11	ERJ6GEYJ332V	1/10W 3.3K	1	MAIN[M]
R12	ERDS2TJ681T	1/4W 680	1	FAJ[M]
R12	ERJ6GEYJ103V	1/10W 10K	1	MAIN[M]
R13	ERDS2TJ473T	1/4W 47K	1	FAJ[M]
R13	ERJ6GEYJ472V	1/10W 4.7K	1	MAIN[M]
R14	ERDS2TJ683T	1/4W 68K	1	FAJ[M]
R14	ERJ6GEYJ101V	1/10W 100	1	MAIN[M]
R15	ERJ6GEYJ331V	1/10W 330	1	MAIN[M]
R16	ERJ6GEYJ102V	1/10W 1K	1	MAIN[M]
R17	ERDS2TJ822T	1/4W 8.2K	1	FAJ[M]
R17	ERJ6GEYJ472V	1/10W 4.7K	1	MAIN[M]
R18	ERDS2TJ393T	1/4W 39K	1	FAJ[M]
R18	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R19	ERDS2TJ562T	1/4W 5.6K	1	FAJ[M]
R19	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R20	ERDS2TJ822T	1/4W 8.2K	1	FAJ[M]
R20	ERJ6GEYJ472V	1/10W 4.7K	1	MAIN[M]
R21	ERDS2TJ393T	1/4W 39K	1	FAJ[M]
R21	ERJ6GEYJ472V	1/10W 4.7K	1	MAIN[M]
R22	ERDS2TJ562T	1/4W 5.6K	1	FAJ[M]
R22	ERJ6GEY0R00V	CHIP JUMPER	1	MAIN[M]
R23	ERD2FVJ682T	1/4W 6.8K	1	MAIN[M]
R23	ERDS2TJ102T	1/4W 1K	1	FAJ[M]
R24	ERDS2TJ473T	1/4W 47K	1	FAJ[M]
R24	ERJ6GEYJ101V	1/10W 100	1	MAIN[M]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R25	ERDS2TJ473T	1/4W 47K	1	FAJ[M]
R25	ERJ6GEYJ682V	1/10W 6.8K	1	MAIN[M]
R26	ERDS2TJ823T	1/4W 82K	1	FAJ[M]
R26	ERJ6GEYJ470V	1/10W 47	1	MAIN[M]
R27	ERDS2TJ823T	1/4W 82K	1	FAJ[M]
R27	ERJ6GEYJ102V	1/10W 1K	1	MAIN[M]
R28	ERJ6GEYJ105V	1/10W 1M	1	MAIN[M]
R29	ERJ6GEYJ101V	1/10W 100	1	MAIN[M]
R30	ERDS2TJ104T	1/4W 100K	1	FAJ[M]
R30	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R31	ERDS2TJ104T	1/4W 100K	1	FAJ[M]
R31	ERJ6GEYJ101V	1/10W 100	1	MAIN[M]
R32	ERDS2TJ101T	1/4W 100	1	FAJ[M]
R32	ERJ6GEYJ102V	1/10W 1K	1	MAIN[M]
R33	ERDS2TJ101T	1/4W 100	1	FAJ[M]
R34	ERDS2TJ223T	1/4W 22K	1	FAJ[M]
R34	ERJ6GEYJ103V	1/10W 10K	1	MAIN[M]
R35	ERDS2TJ223T	1/4W 22K	1	FAJ[M]
R35	ERJ6GEYJ222V	1/10W 2.2K	1	MAIN[M]
R36	ERDS2TJ151T	1/4W 150	1	FAJ[M]
R36	ERJ6GEYJ103V	1/10W 10K	1	MAIN[M]
R37	ERDS2TJ821T	1/4W 820	1	FAJ[M]
R38	ERDS2TJ223T	1/4W 22K	1	FAJ[M]
R38	ERJ6GEYJ332V	1/10W 3.3K	1	MAIN[M]
R39	ERJ6GEYJ101V	1/10W 100	1	MAIN[M]
R40-42	ERJ6GEYJ102V	1/10W 1K	3	MAIN[M]
R43	ERDS2TJ683T	1/4W 68K	1	FAJ[M]
R43	ERJ6GEYJ105V	1/10W 1M	1	MAIN[M]
R44	ERDS2TJ562T	1/4W 5.6K	1	FAJ[M]
R44	ERJ6GEYJ470V	1/10W 47	1	MAIN[M]
R45	ERDS2TJ683T	1/4W 68K	1	FAJ[M]
R45	ERJ6GEYJ102V	1/10W 1K	1	MAIN[M]
R46	ERDS2TJ223T	1/4W 22K	1	FAJ[M]
R46	ERJ6GEYJ102V	1/10W 1K	1	MAIN[M]
R47	ERDS2TJ562T	1/4W 5.6K	1	FAJ[M]
R47,48	ERJ6GEYJ102V	1/10W 1K	2	MAIN[M]
R49	ERD2FCVJ4R7T	1/4W 4.7	1	 FAJ[M]
R49	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R50	ERDS2TJ223T	1/4W 22K	1	FAJ[M]
R50	ERJ6GEYJ105V	1/10W 1M	1	MAIN[M]
R51	ERD25FVJ2R2T	1/4W 2.2	1	 FAJ[M]
R51	ERJ6GEYJ470V	1/10W 47	1	MAIN[M]
R52	ERDS2TJ223T	1/4W 22K	1	FAJ[M]
R52	ERJ6GEYJ332V	1/10W 3.3K	1	MAIN[M]
R53	ERD25FVJ2R2T	1/4W 2.2	1	 FAJ[M]
R53	ERJ6GEYJ822V	1/10W 8.2K	1	MAIN[M]
R54	ERDS2TJ224T	1/4W 220K	1	FAJ[M]
R54	ERJ6GEYJ822V	1/10W 8.2K	1	MAIN[M]
R55	ERD25FVJ2R2T	1/4W 2.2	1	 ; FAJ[M]
R55	ERJ6GEYJ332V	1/10W 3.3K	1	MAIN[M]
R56	ERDS2TJ472T	1/4W 4.7K	1	FAJ[M]
R56	ERJ6GEYJ822V	1/10W 8.2K	1	MAIN[M]
R57	ERDS2TJ471T	1/4W 470	1	FAJ[M]

197	1982-1971	1971-70	1	1970
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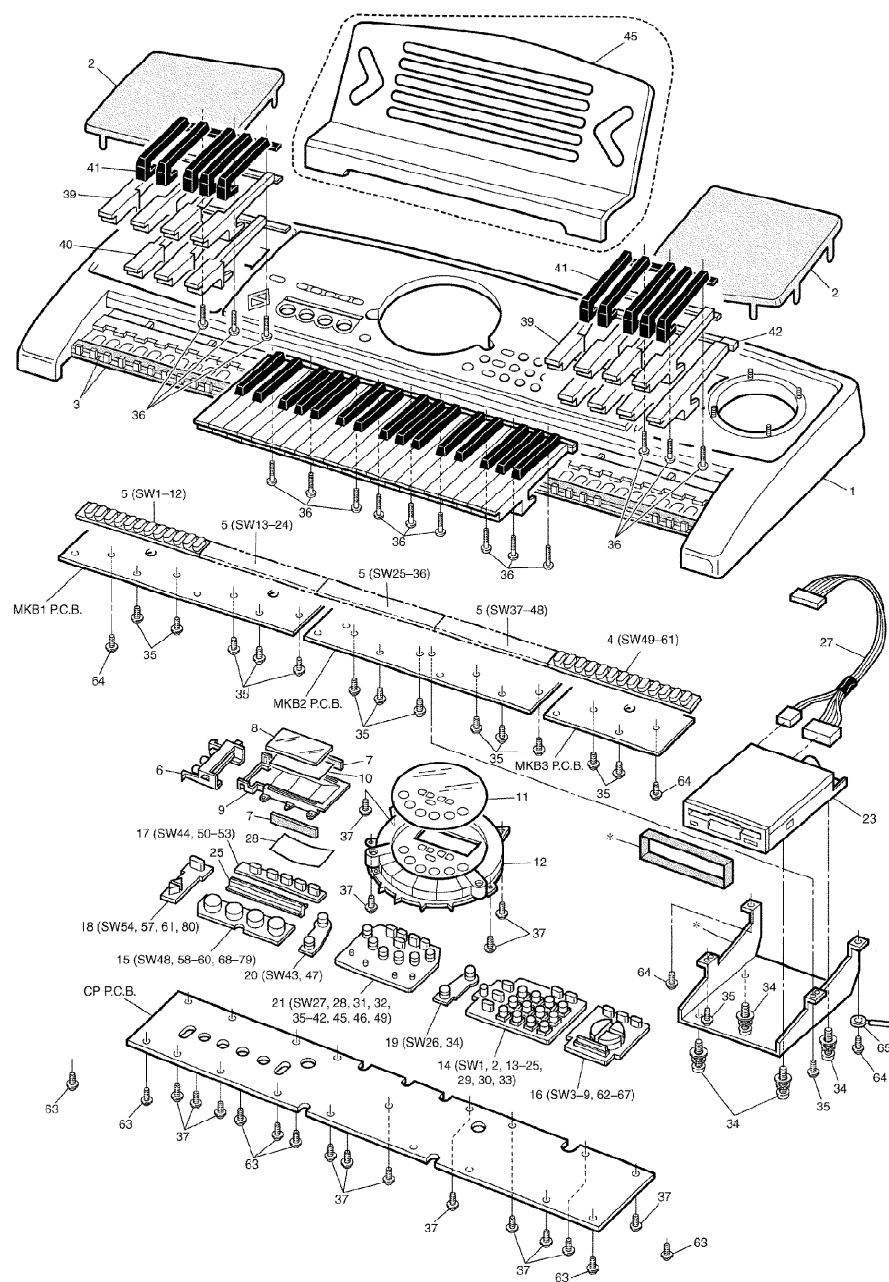
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R57	ERJ6GEYJ822V	1/10W 8.2K	1	MAIN[M]
R58	ERDS2TJ682T	1/4W 6.8K	1	FAJ[M]
R58	ERJ6GEYJ332V	1/10W 3.3K	1	MAIN[M]
R59	ERDS2TJ471T	1/4W 470	1	FAJ[M]
R59	ERJ6GEYJ822V	1/10W 8.2K	1	MAIN[M]
R60	ERDS2TJ680T	1/4W 68	1	FAJ[M]
R60	ERJ6GEYJ822V	1/10W 8.2K	1	MAIN[M]
R61	ERDS2TJ471T	1/4W 470	1	FAJ[M]
R61	ERJ6GEYJ332V	1/10W 3.3K	1	MAIN[M]
R62	ERDS2FJ222	1/4W 2.2K	1	FAJ[M]
R62	ERJ6GEYJ822V	1/10W 8.2K	1	MAIN[M]
R63	ERDS2TJ102T	1/4W 1K	1	FAJ[M]
R63	ERJ6GEYJ822V	1/10W 8.2K	1	MAIN[M]
R64	ERD2FCVJ4R7T	1/4W 4.7	1	 FAJ[M]
R64	ERJ6GEYJ153V	1/10W 15K	1	MAIN[M]
R65	ERDS2TJ680T	1/4W 68	1	FAJ[M]
R65,66	ERJ6GEYJ151V	1/10W 150	2	MAIN[M]
R67	ERDS2TJ103T	1/4W 10K	1	FAJ[M]
R67	ERJ6GEYJ153V	1/10W 15K	1	MAIN[M]
R68	ERDS2TJ102T	1/4W 1K	1	FAJ[M]
R68	ERJ6GEYJ151V	1/10W 150	1	MAIN[M]
R69	ERDS2TJ102T	1/4W 1K	1	FAJ[M]
R69	ERJ6GEYJ153V	1/10W 15K	1	MAIN[M]
R70	ERDS2TJ121T	1/4W 120	1	FAJ[M]
R70	ERJ6GEYJ151V	1/10W 150	1	MAIN[M]
R71	ERD25FVJ2R2T	1/4W 2.2	1	 FAJ[M]
R71	ERJ6GEYJ153V	1/10W 15K	1	MAIN[M]
R72	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R73	ERDS2TJ121T	1/4W 120	1	FAJ[M]
R73	ERJ6GEYJ470V	1/10W 47	1	MAIN[M]
R74	ERJ6GEYJ101V	1/10W 100	1	MAIN[M]
R75	ERDS2TJ101T	1/4W 100	1	FAJ[M]
R75	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R76	ERDS2TJ103T	1/4W 10K	1	FAJ[M]
R76,77	ERJ6GEYJ221V	1/10W 220	2	MAIN[M]
R78	ERDS2TJ682T	1/4W 6.8K	1	FAJ[M]
R78	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R79	ERDS2TJ121T	1/4W 120	1	FAJ[M]
R79	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R80	ERDS2TJ473T	1/4W 47K	1	FAJ[M]
R80	ERJ6GEYJ221V	1/10W 220	1	MAIN[M]
R81	ERDS2TJ473T	1/4W 47K	1	FAJ[M]
R81-83	ERJ6GEYJ102V	1/10W 1K	3	MAIN[M]
SW1-12	-	SWITCH	12	MKB1*1
SW13-24	-	SWITCH	12	MKB1*1
SW25-36	-	SWITCH	12	MKB2*1
SW37-48	-	SWITCH	12	MKB2*1
SW49-61	-	SWITCH	13	MKB3*1
SW1-9	-	SWITCH	10	CP*1
SW13-54	-	SWITCH	42	CP*1
SW57-79	-	SWITCH	23	CP*1

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
X1,X2	QSG2F2400DA	CERAMIC OCS 24MHZ	2	MAIN[M]
X3	QSG1A0800A	XTAL OCS 8MHZ	1	MAIN(E)
Z1-Z4	EXBS8V221J	220 Ω x4	4	MAIN(E)
Z5	EXBS8V471J	470 Ω x4	1	MAIN(E)
Z6-16	EXBS8V222J	2.2K Ω x4	11	MAIN(E)
Z17	EXBS8V104J	100K Ω x4	1	MAIN[M]
Z18	EXBS8V221J	220 Ω x4	1	MAIN(E)
Z19	EXBS8V101J	100 Ω x4	1	MAIN(E)
Z20	EXBS8V151J	150 Ω x4	1	MAIN(E)
Z21,22	EXBS8V471J	470 Ω x4	2	MAIN(E)
Z23,24	EXBS8V472J	4.7K Ω x4	2	MAIN(E)
Z25-27	EXBS8V221J	220 Ω x4	3	MAIN(E)
Z28-30	EXBS8V470J	47 Ω x4	3	MAIN(E)
Z31	EXBS8V102J	1K Ω x4	1	MAIN(E)
Z32	EXBS8V471J	470 Ω x4	1	MAIN(E)
Z33-35	EXBS8V102J	1K Ω x4	3	MAIN(E)
Z36,37	EXBS8V221J	220 Ω x4	2	MAIN(E)
Z38	EXBS8V471J	470 Ω x4	1	MAIN(E)
Z39,40	EXBS8V223J	22K Ω x4	2	MAIN(E)
Z41,42	EXBS8V221J	220 Ω x4	2	MAIN(E)
Z43,44	EXBS8V102J	1K Ω x4	2	MAIN(E)
Z46,47	EXBS8V221J	220 Ω x4	2	MAIN(E)

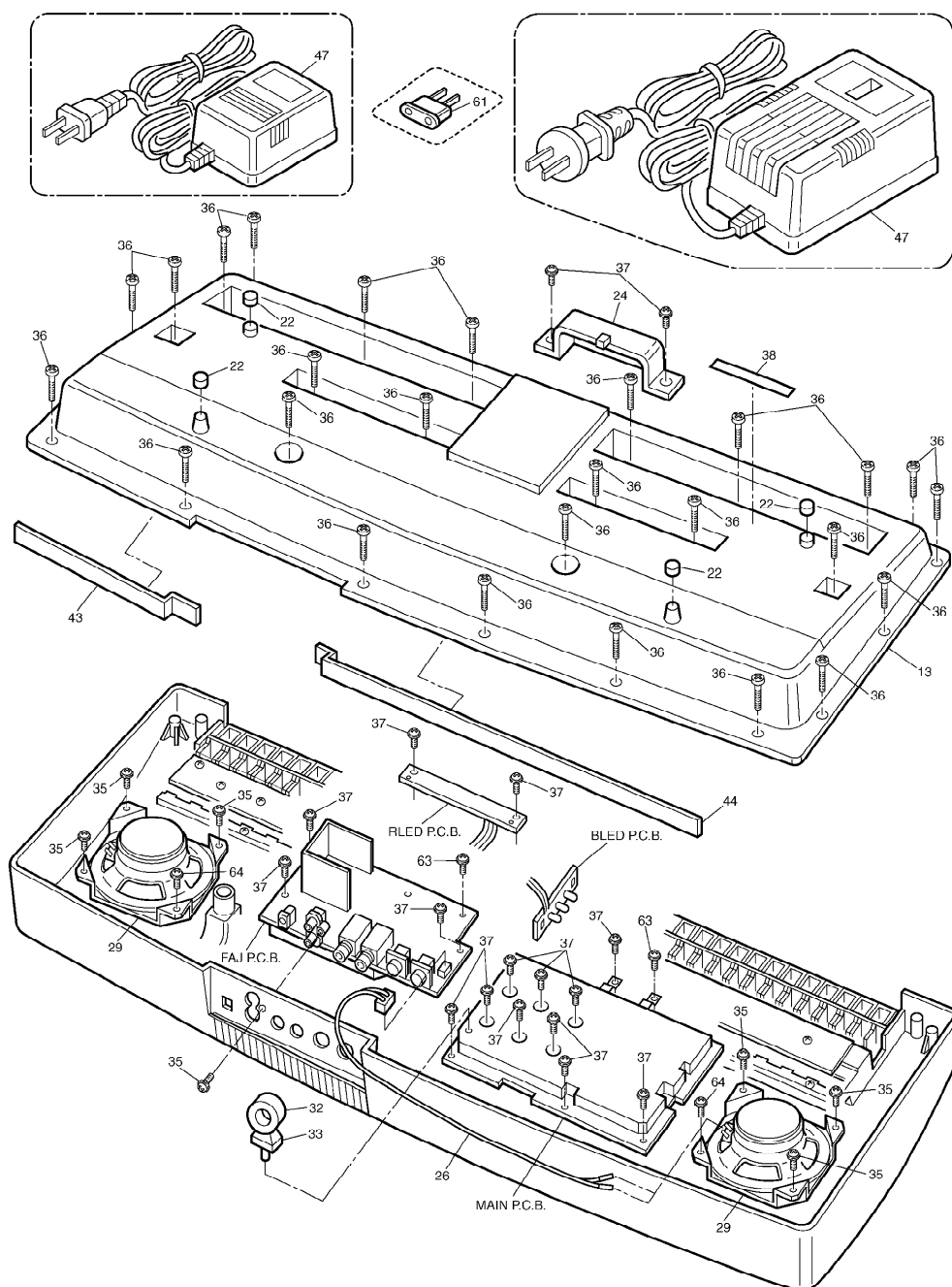
Notes:

***1:** Since SW consists of buttons and P.C.B.s, we do not supply it as an individual part (refer to “**CABINET PARTS LOCATION**” on).

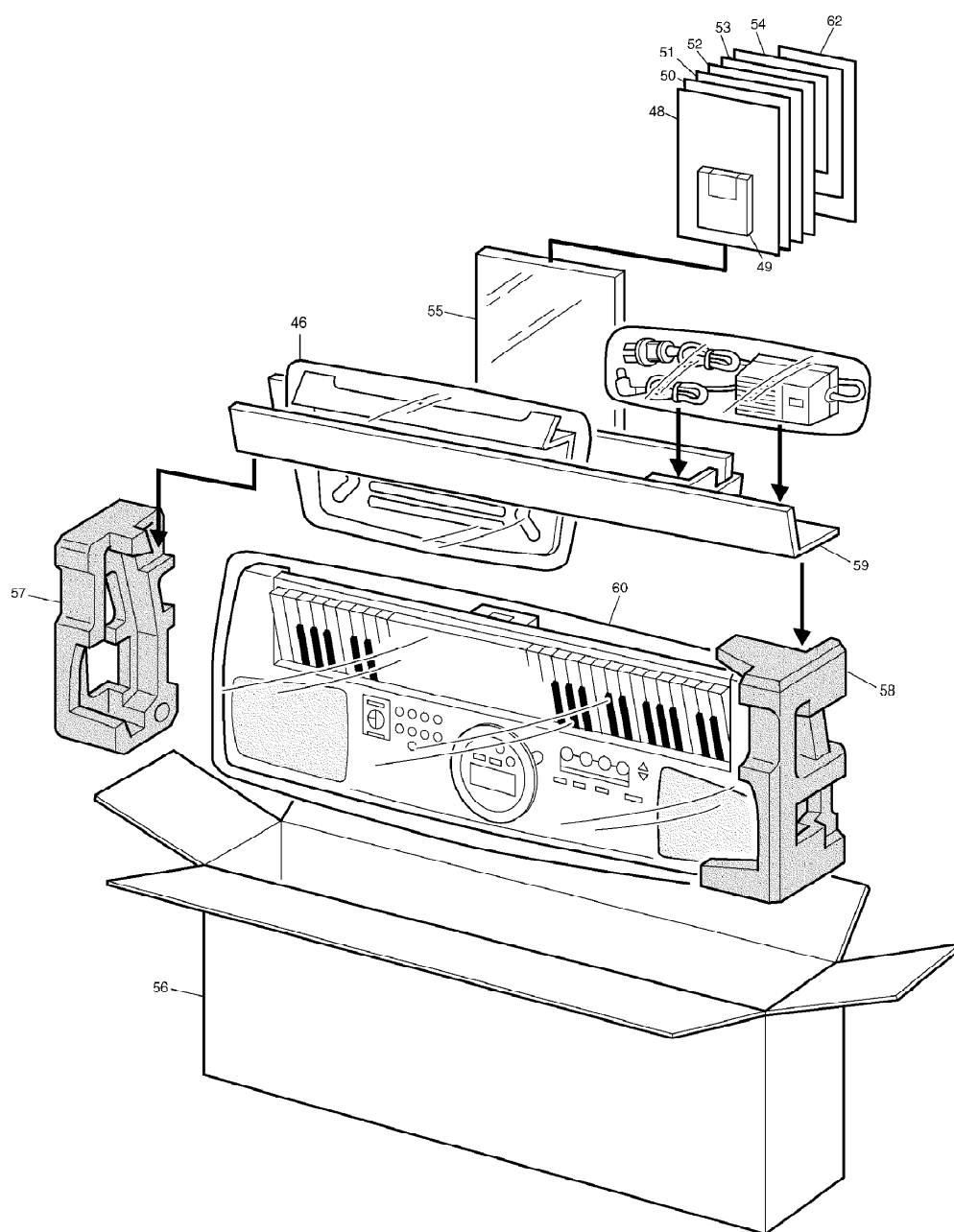
16. CABINET PARTS LOCATION



- Since SW consists of buttons and P.C.B.s, we do not supply it as an individual part.
- We do not supply those items of parts marked *



17. PACKAGING



/ Printed in Japan / S000303000 HM/AM

Controls and functions

SONG

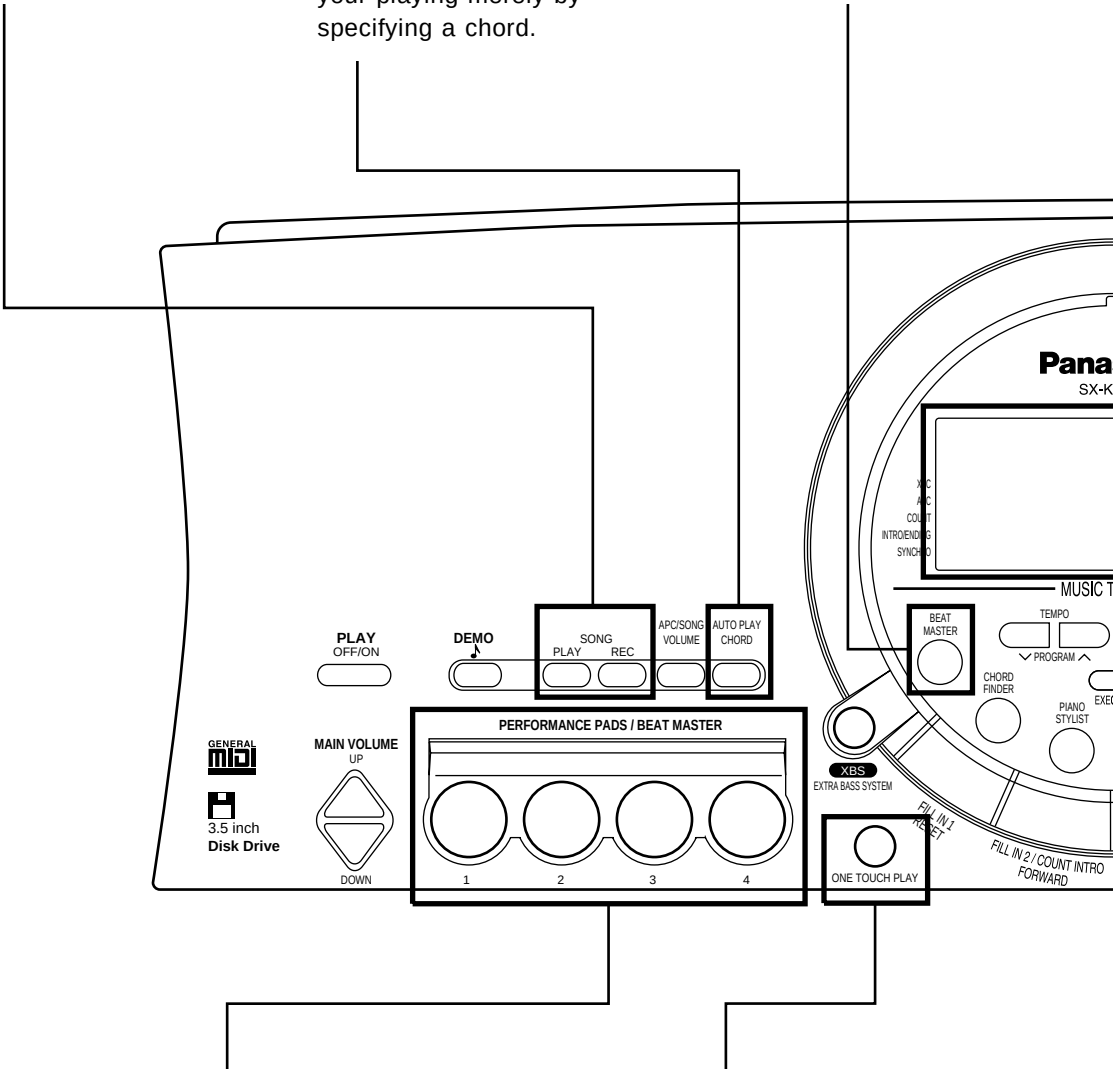
Record and play back your performance.

AUTO PLAY CHORD

An automatically accompaniment is added to your playing merely by specifying a chord.

BEAT MASTER

A fun way to develop your sense of rhythm.



PERFORMANCE PADS/BEAT MASTER

Just press a pad button to add a phrase to your playing. You can also tap the pad buttons in time with the beat.

ONE TOUCH PLAY

An appropriate combination of sounds, etc. for your selected rhythm are automatically set up for the automatic accompaniment.

MUSIC TRAINER

The **MUSIC TRAINER** function incorporated in this instrument can be a helpful aid to improving your performance.

Example

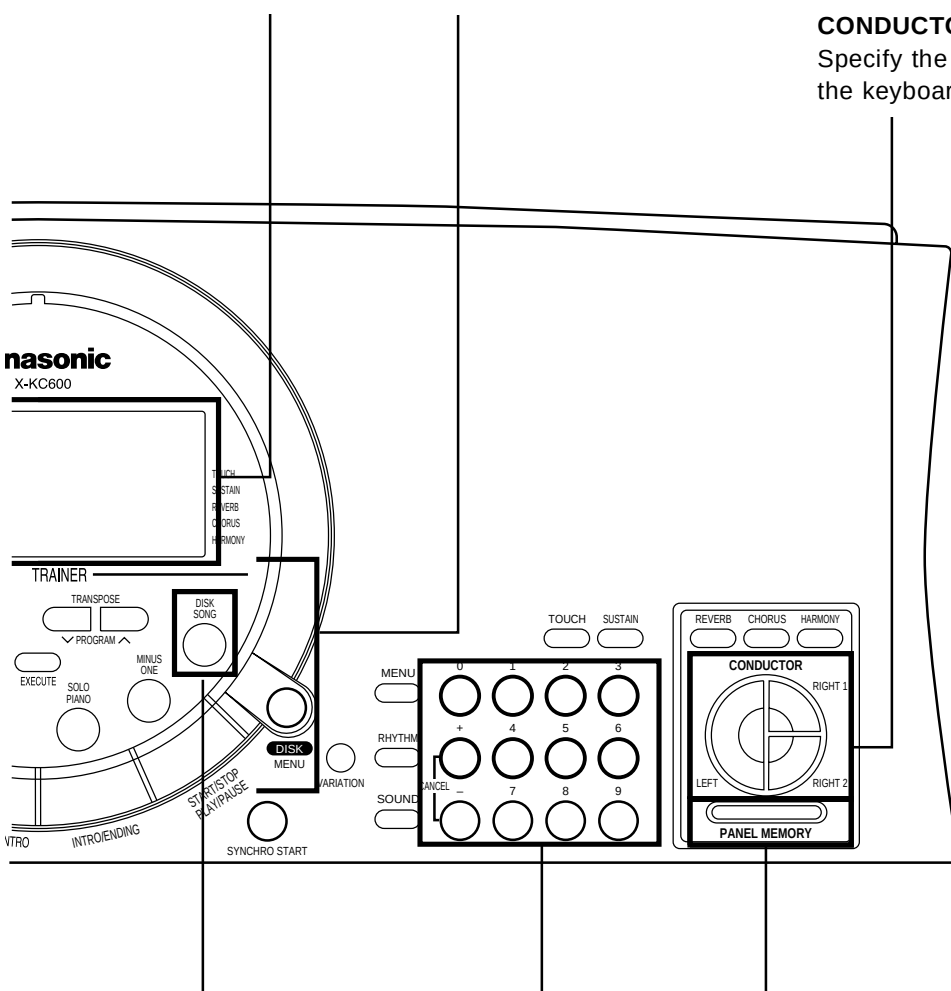
- **BEAT MASTER**, to develop your sense of rhythm.
- **CHORD FINDER**, to teach you how to play chords.
- **MINUS ONE** lets you practice the melody part while listening to the other song parts.
- The display shows a visual illustration of the keys and notes you play.

Display

Displays the status of your instrument and is also used for setting the various functions.

CONDUCTOR

Specify the performance parts of the keyboard.



DISK SONG

Play back song data from a floppy disk.

Number buttons

Specify the desired sounds and rhythms etc. by number.

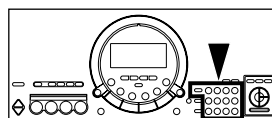
PANEL MEMORY

Store the current instrument settings for easy recall later.

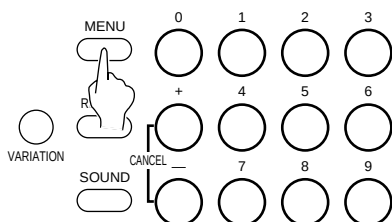
Part V Menu

Various settings that enhance the functions of this instrument are accessed through the **MENU** function.

Outline of the procedure



1. Press the **MENU** button.



2. Use the number buttons to enter the menu number of the setting you wish to display (two digits).

- The **+** and **-** buttons and the **TRANPOSE/PROGRAM** buttons can also be used to select the menu number.

■ MENU list:

[] indicates the name shown on the display.

- 01 to 06: PADS BANK SELECT** [PAD BANK 1-6]
Select a BANK for the **PERFORMANCE PADS**.

- 07: PART VOLUME** [PT VOL]
Volume settings for each part.

- 08: PART SOUND** [PT SOUND]
Sound settings for each part.

- 09: PART PANPOT** [PT PAN]
Stereo setting for each part.

- 10: PART REVERB SEND** [PT REV]
Depth settings for the **REVERB** for each part.

- 11: PART CHORUS SEND** [PT CHORS]
Depth settings for the **CHORUS** of each part.

- 12: PART MIDI CHANNEL** [PT MIDI]
MIDI channel settings for each part

- 13: PART LOCAL SETTING** [PT LOCAL]
MIDI LOCAL CONTROL settings for each part.

- 14: SONG TRACK MUTE** [TR MUTE]
Mute setting for each track of a **SONG**.

- 15: SONG CLEAR** [SONG CLR]
Clear all **SONG** tracks.

- 16: TRACK CLEAR** [TR CLEAR]
Clear specified **SONG** tracks.

- 17: MIDI CLOCK** [MIDI CLK]
MIDI CLOCK mode settings.

- 18: MIDI REALTIME COMMAND** [MIDI RTC]
Setting to enable or disable the transmission/reception of MIDI REALTIME COMMAND data.

- 19: SPLIT POINT** [SPLIT]

Change the split point on the keyboard.

- 20: MASTER TUNING** [TUNING]

Fine adjustment of the tuning for the whole instrument.

- 21: FOOT SWITCH ASSIGN** [FOOT SW]

Assign a function to the Foot Switch (sold separately).

- 22: LCD CONTRAST** [CONTRAST]

Adjust the readability of the display.

- 23: DEMO LED** [DEMO LED]

ON/OFF settings for the LED lighting of the pad buttons during a DEMO performance.

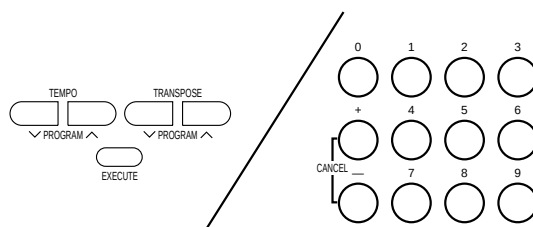
- 24: ALL INITIAL** [ALL INIT]

Reset this instrument to the original settings.

3. Press the **EXECUTE** button.

- The display changes to the setting display for the selected **MENU**.

4. Use the **TEMPO/PROGRAM** buttons, the **TRANPOSE/PROGRAM** buttons, or the **EXECUTE** button to adjust the settings in the selected menu.

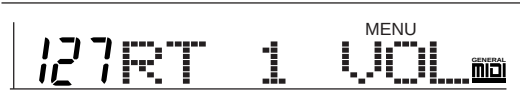


5. When you have finished making the settings, press the **MENU** button again.

- If you execute a setting, there is also a menu to exit the setting mode.

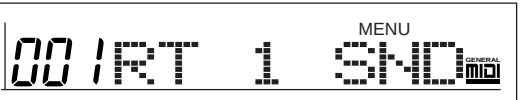
Setting menus

PART VOLUME



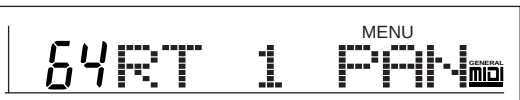
1. Use the **TRANPOSE/PROGRAM** buttons to select the part you wish to set.
 - RT is the abbreviation for RIGHT, PT for part and ACP for ACCOMP.
2. Use the **TEMPO/PROGRAM** buttons to adjust the volume (0 to 127).
 - Repeat these steps for each part as necessary.

PART SOUND



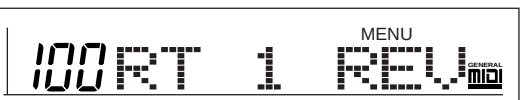
1. Use the **TRANPOSE/PROGRAM** buttons to select the part you wish to set.
2. Use the **TEMPO/PROGRAM** buttons or the number buttons to select a sound for the part.

PART PANPOT



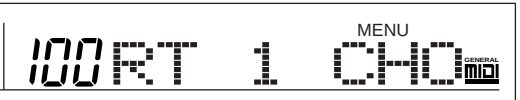
1. Use the **TRANPOSE/PROGRAM** buttons to select the part you wish to set.
2. Use the **TEMPO/PROGRAM** buttons to adjust the stereo midpoint (0 to 127).
 - At 0 the center is all the way to the left, at 64 the center is midway between right and left, and at 127 the center is all the way to the right.

PART REVERB SEND



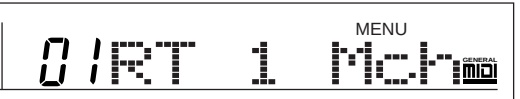
1. Use the **TRANPOSE/PROGRAM** buttons to select the part you wish to set.
2. Use the **TEMPO/PROGRAM** buttons to adjust the depth of the **REVERB** (0 to 127).

PART CHORUS SEND



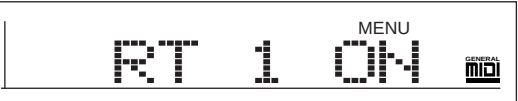
1. Use the **TRANPOSE/PROGRAM** buttons to select the part you wish to set.
2. Use the **TEMPO/PROGRAM** buttons to adjust the depth of the **CHORUS** (0 to 127).

PART MIDI CHANNEL



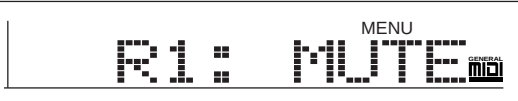
1. Use the **TRANPOSE/PROGRAM** buttons to select the part you wish to set.
2. Use the **TEMPO/PROGRAM** buttons to set the channel (OFF, 01 to 16).

PART LOCAL SETTING



1. Use the **TEMPO/PROGRAM** buttons to select the part you wish to set.
2. Use the **TRANPOSE/PROGRAM** buttons to set the LOCAL CONTROL setting (ON or OFF).
 - When set to OFF, the performance for the part is transmitted as MIDI data but does not sound from this instrument.

SONG TRACK MUTE



1. Use the **TEMPO/PROGRAM** buttons to select the track you wish to mute.
 - R is the abbreviation for RIGHT and L for LEFT. C indicates the CHORD part.
2. Use the **TRANPOSE/PROGRAM** buttons to display the MUTE indication.
 - " --- " indicates that the MUTE function is turned off for the track.

SONG CLEAR



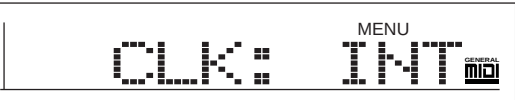
- Press the **EXECUTE** button.
- "COMPLETE" appears on the display, and all the tracks of the **SONG** are cleared.

TRACK CLEAR



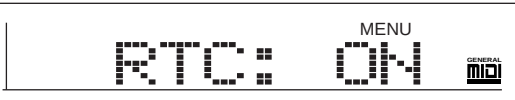
1. Use the **TRANPOSE/PROGRAM** buttons to select the track you wish to clear.
 - R is the abbreviation for RIGHT and L for LEFT. C indicates the CHORD part.
2. Press the **EXECUTE** button.
 - "CLEAR?" appears on the display.
3. Press the **EXECUTE** button again.
 - "COMPLETE" appears on the display, and the specified track is cleared.

MIDI CLOCK



- Use the **TRANPOSE/PROGRAM** buttons to select the MIDI CLOCK mode.
- INT: This instrument's internal clock is used to control the connected MIDI equipment.
 - EXT: The clock of the connected MIDI equipment is used to control this instrument. (The tempo is displayed as "♩ = - - -".)
- The setting is always set to INT when the power to this instrument is turned on.

MIDI REALTIME COMMAND



- Use the **TRANPOSE/PROGRAM** buttons to enable or disable the transmission/reception of MIDI REALTIME COMMAND data.
- ON: REALTIME COMMAND (START/STOP, CONTINUE) data are transmitted/received.
 - OFF: REALTIME COMMAND data are not transmitted/received.

SPLIT POINT



Press the keyboard key to specify the desired split position.

- The name of the specified note is shown on the display.
- The initialized setting is at C3.
- The key at the split point is the lowest note of the right keyboard section.

MASTER TUNING



Use the **TRANPOSE/PROGRAM** buttons to adjust the tuning value (- 38 - C enter - + 39).

FOOT SWITCH ASSIGN



Use the **TRANPOSE/PROGRAM** buttons to select a function to assign to the Foot Switch (separately sold option).

- Select from SUSTAIN, START/STOP [ST/STOP] and GLIDE.
- In cases where the switch polarity is reversed, select a function name that is preceded by a "-" indication.
- Pressing the Foot Switch will turn the assigned function on.
- GLIDE "bends" the pitch down by about one semitone.

LCD CONTRAST



Use the **TRANPOSE/PROGRAM** buttons to adjust the readability of the display (1 to 10).

DEMO LED



Use the **TRANPOSE/PROGRAM** buttons to specify whether or not the pad button LEDs light during a **DEMO** performance.

- ON: The pad button LEDs light also during a **DEMO** performance.
- OFF: The pad button LEDs do not light during the **DEMO** performance.

ALL INITIAL



Press the **EXECUTE** button.

- "COMPLETE" appears on the display, and all the settings of the instrument (except for **MAIN VOLUME**) are reset to the factory-preset status. Note that the **SONG** and **PANEL MEMORY** contents are cleared with this procedure.
- You can also reset the instrument with the following procedure: While pressing the **TEMPO** ^ and v at the same time, turn on the power to the instrument. With this method, the **MAIN VOLUME** setting is also initialized.

■ Memory function

The various settings and memory contents of this instrument are maintained as long as the AC adaptor is connected to this instrument and plugged into an outlet. In addition, the settings are preserved for about one week after the AC adaptor is unplugged.

- The memory function does not function until the power has been on for about 10 minutes.
- It is recommended that you save your **SONG** performances on floppy disks.

Symptoms which appear to be signs of trouble

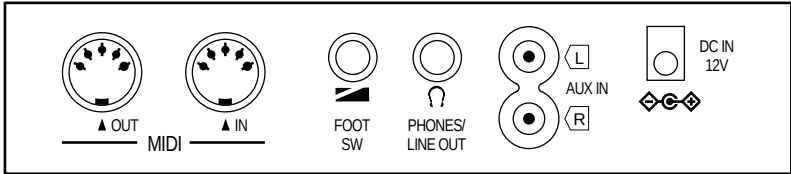
The following changes in performance may occur in the Keyboard but do not indicate trouble.

	Phenomenon	Remedy
Sounds and effects	The buttons, keys, etc. malfunction.	• Turn off the PLAY button once, then turn it on again. If this procedure is not successful, turn off the PLAY button once. Then, while pressing the TEMPO $\wedge$ and $\vee$ buttons at the same time, turn the PLAY button on again. (Note that, in this case, all programmable settings, functions and memories return to their factory-preset status.)
	No sound is produced when the keys are pressed.	• The MAIN VOLUME is at the minimum setting. Adjust the volume with the MAIN VOLUME control. • The volumes for the selected parts are set to the minimum levels. Set the volumes of the relevant parts to appropriate levels. • The LOCAL CONTROL for a part performed on the keyboard is set to OFF. Set the LOCAL CONTROL to ON.
	Only percussive instrument sounds are produced when the keyboard is played.	• A DRUM KITS sound is selected.
	The sound you hear is different from the sound you selected.	• This sometimes occurs when you play back SONG data which was created on a different model, or when MIDI data is received from a connected instrument. Select the desired sounds again.
Rhythm	The rhythm does not start.	• The PLAY button in the SONG section is on. When you are not playing back the SONG performance, turn off the PLAY button. • The DRUMS volume is set to the minimum level. Use the balance buttons to set the DRUMS volume to an appropriate level. • The 091 CLASSIC BALLAD rhythm is selected. This rhythm does not sound unless the AUTO PLAY CHORD is used. • MIDI CLOCK is set to EXT. Set CLOCK to INT.
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment.	• The APC/SONG VOLUME is set to the minimum setting. Set it to a suitable level.
SONG	Storage is not possible.	• The remaining memory capacity of the SONG is 0. Follow the SONG CLEAR or TRACK CLEAR procedure to erase the memory.
Disk Drive	The Disk Drive produces a noise during recording or playback.	• This occurs when the Disk Drive is reading a disk. It does not indicate a problem.
	When the procedure to listen to a song on the disk is performed, the contents of the keyboard memory are erased.	• When performing the procedure to listen to a song on the disk, the keyboard memory changes to that of the data loaded from the disk. If you wish to preserve a song which is stored in the keyboard memory, save it on a disk before performing the load procedure.

Phenomenon		Remedy
Other	Noise from a radio or TV can be heard.	• This sometimes occurs when electrical equipment such as a radio or TV is used near the instrument. Try moving such electrical equipment further away from the instrument. • The sound may be coming from a nearby broadcast station or amateur radio station. If the sound is bothersome, consult your dealer or service center.
	The cabinet becomes warm during use.	• This instrument has a power source that heats the cabinet to some degree. This is not an indication of trouble.

Connections

(Rear panel)



MIDI OUT

Used for transmitting MIDI data. Connect the other end of the MIDI cable to the MIDI IN terminal of another instrument. This terminal is used, for example, to generate sound from a connected instrument by playing this instrument.

MIDI IN

Used for receiving MIDI data. Connect the other end of the MIDI cable to the MIDI OUT terminal of another instrument. This terminal is used, for example, to generate sound from this instrument by playing a connected instrument.

AUX IN (stereo pin cord)

Connect to the LINE OUT terminal of another instrument to this terminal. The sound from a connected CD player, for example, can be output from this instrument's speakers.

FOOT SW

An optional **SZ-P1** Foot Switch (sold separately) can be connected to this terminal to control various functions.

PHONES/LINE OUT (output level 1.5 Vrms, 16 Ω)
Headphones, a keyboard amplifier, or stereo equipment can be connected to this terminal. When another apparatus is connected to this terminal, the speaker system is automatically switched off, and sound is heard only through the connected device.

Separately sold option



SZ-P1 Foot Switch

MIDI IMPLEMENTATION CHART

Keyboard [SX-KC600]

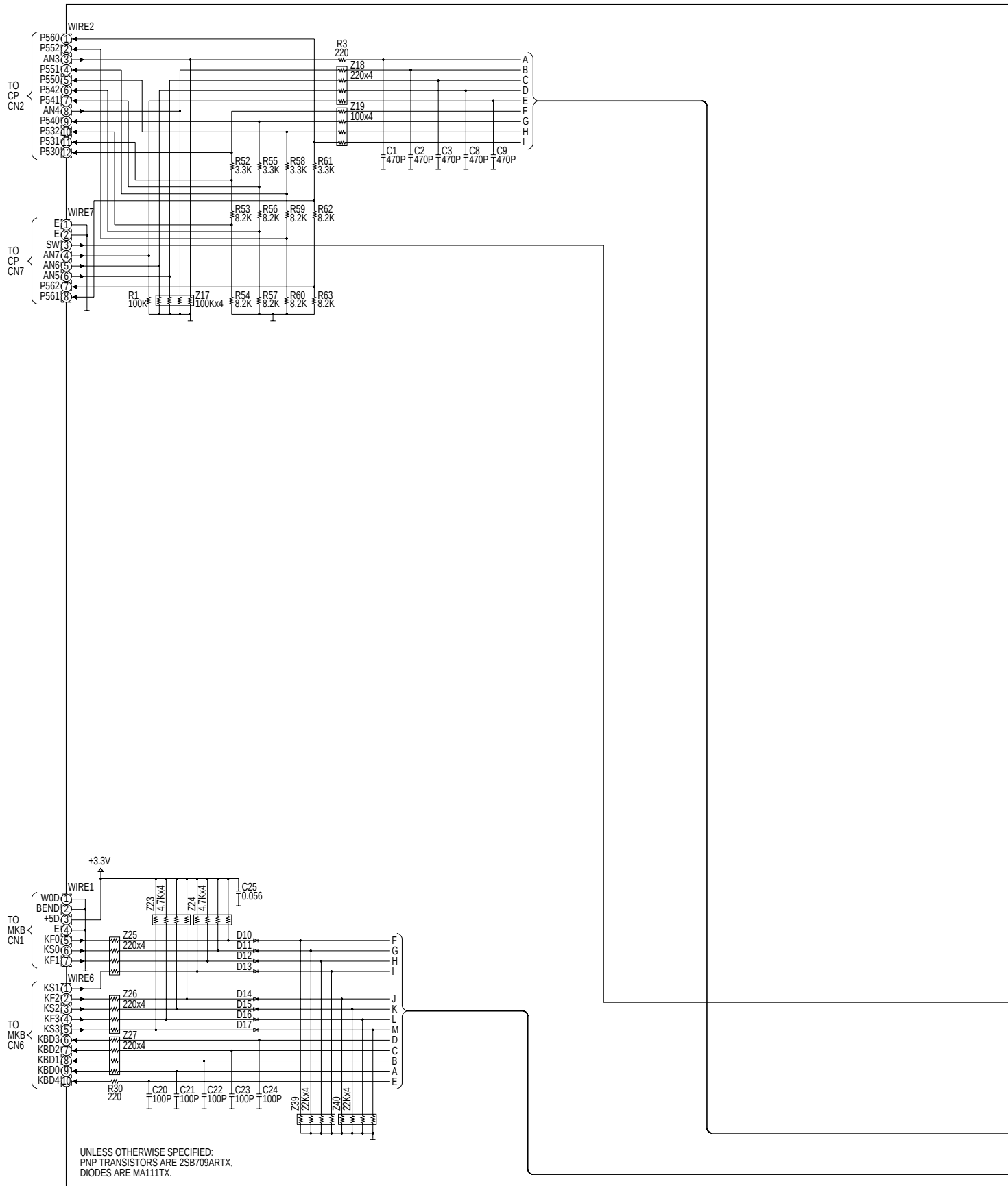
Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1—16	1—16	memorized
	Changed	1—16	1—16	
Mode	Default	3	3	OMNI OFF, POLY Mode
	Messages	×	×	
	Altered	—	—	
Note Number		0—127	0—127	
	True voice	—	0—127	
Velocity	Note ON	○	○	
	Note OFF	×	×	
After Touch	Key's	×	×	
	Ch's	×	○	
Pitch Bend		×	○	
Control Change	0,32	○	○	bank sel MSB/LSB modulation data entry MSB/LSB volume panpot expression sustain reverb chorus RPN LSB/MSB all sound off reset all controllers
	1	×	○	
	6,38	×	○	
	7	○	○	
	10	○	○	
	11	×	○	
	64	○	○	
	91	○	○	
	93	○	○	
	100,101	×	○	
	120	×	○	
	121	×	○	
Prog Change		○	○	
	True #	—	0—127	
System Exclusive		○	○	
System common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	○ ×	○ ×	start/stop, continue
	Commands	○ ×	○ ×	
Aux Mes-sages	Local ON/OFF	×	×	
	All Notes OFF	×	○	
	Active Sense	○	○	
	Reset	×	×	
Notes		○ × Whether or not the data for each of these items is transmitted/recognized can be set.		

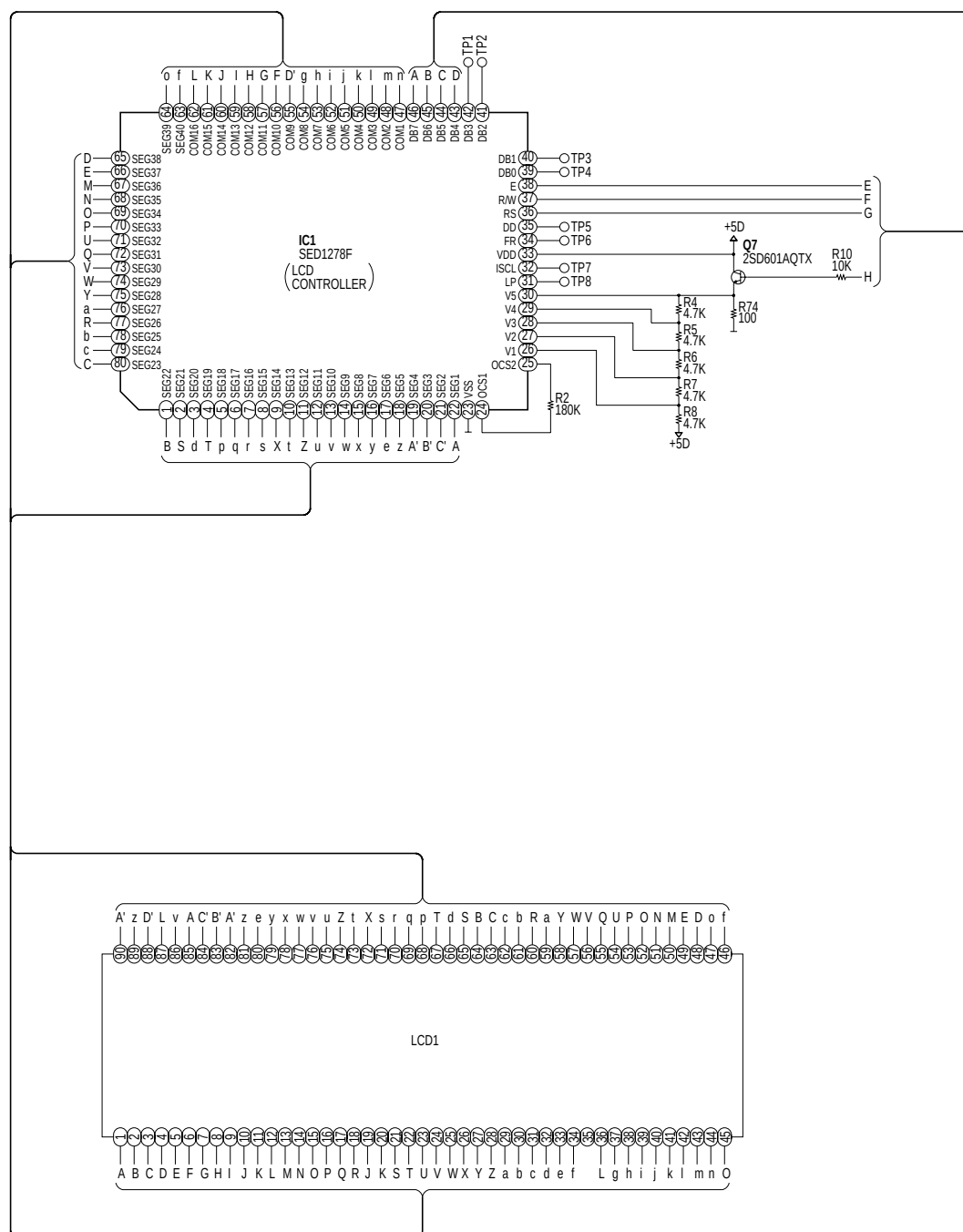
Mode 1 : OMNI ON, POLY
Mode 3 : OMNI OFF, POLY

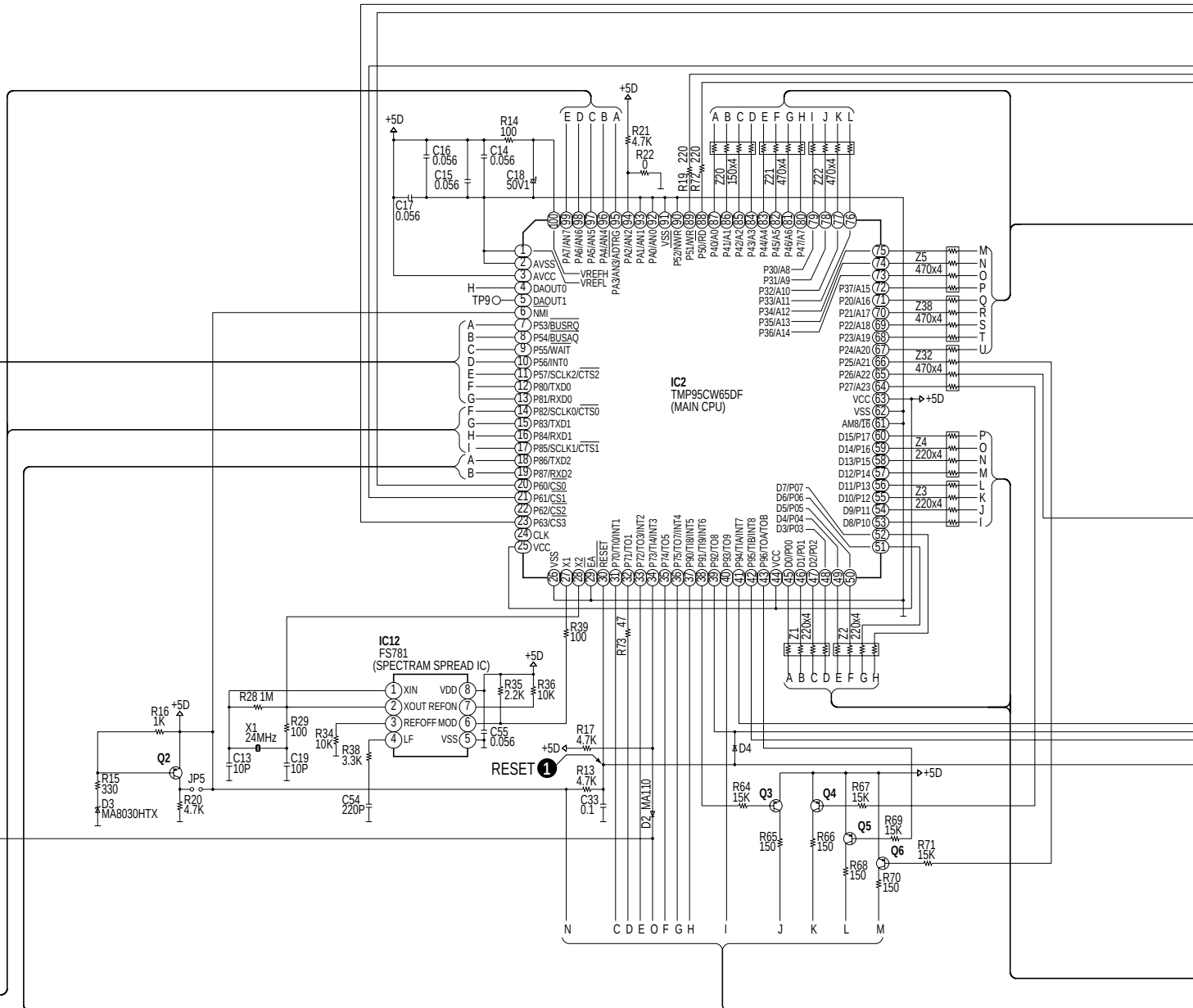
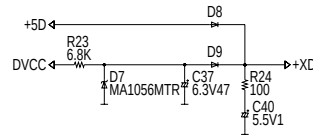
Mode 2 : OMNI ON, MONO
Mode 4 : OMNI OFF, MONO

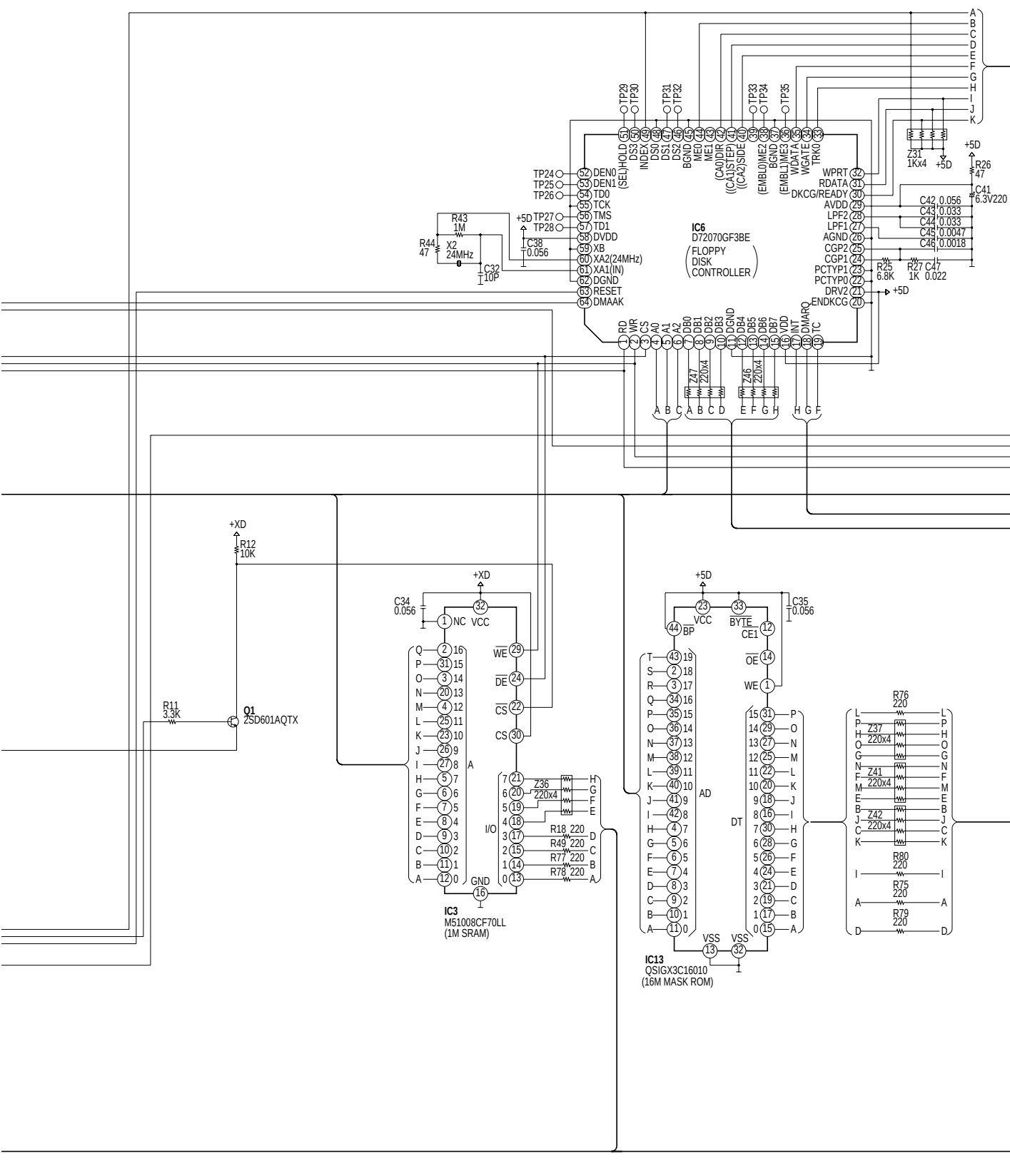
○ : Yes
x : No

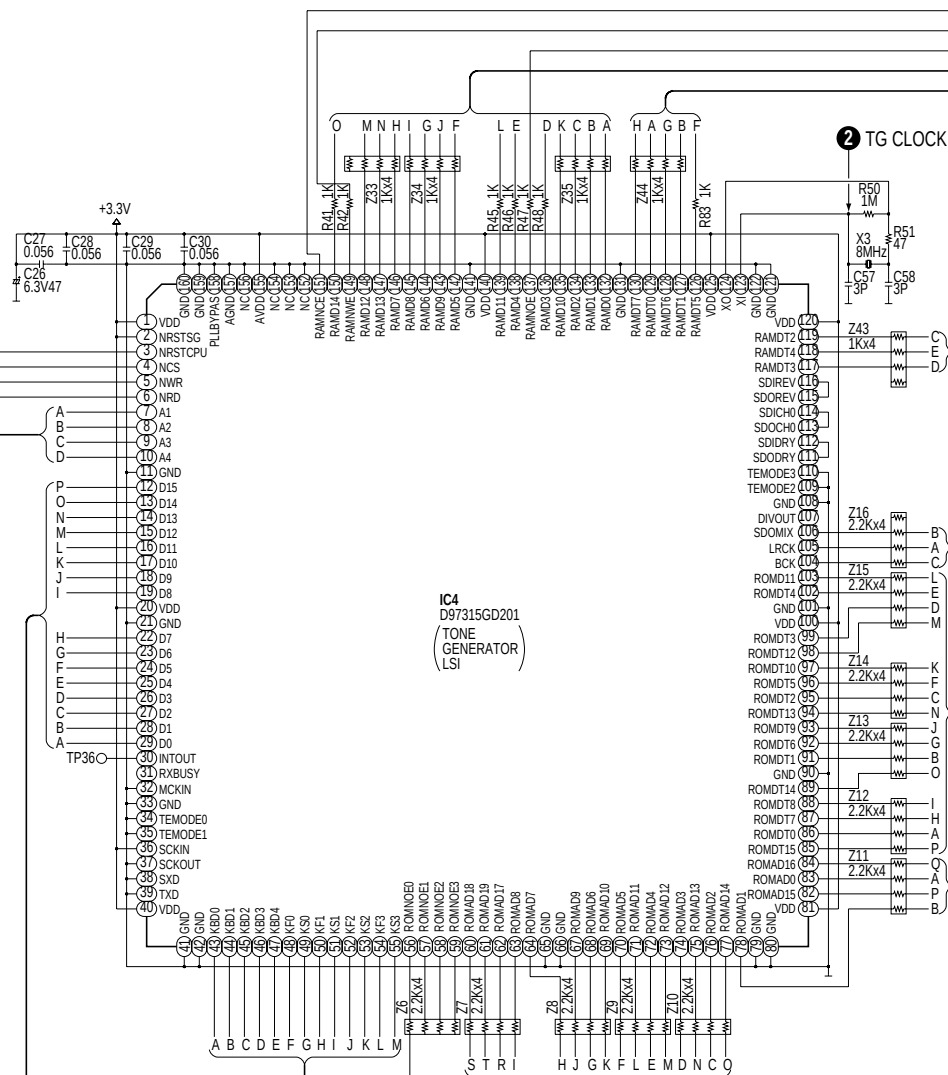
A MAIN CIRCUIT

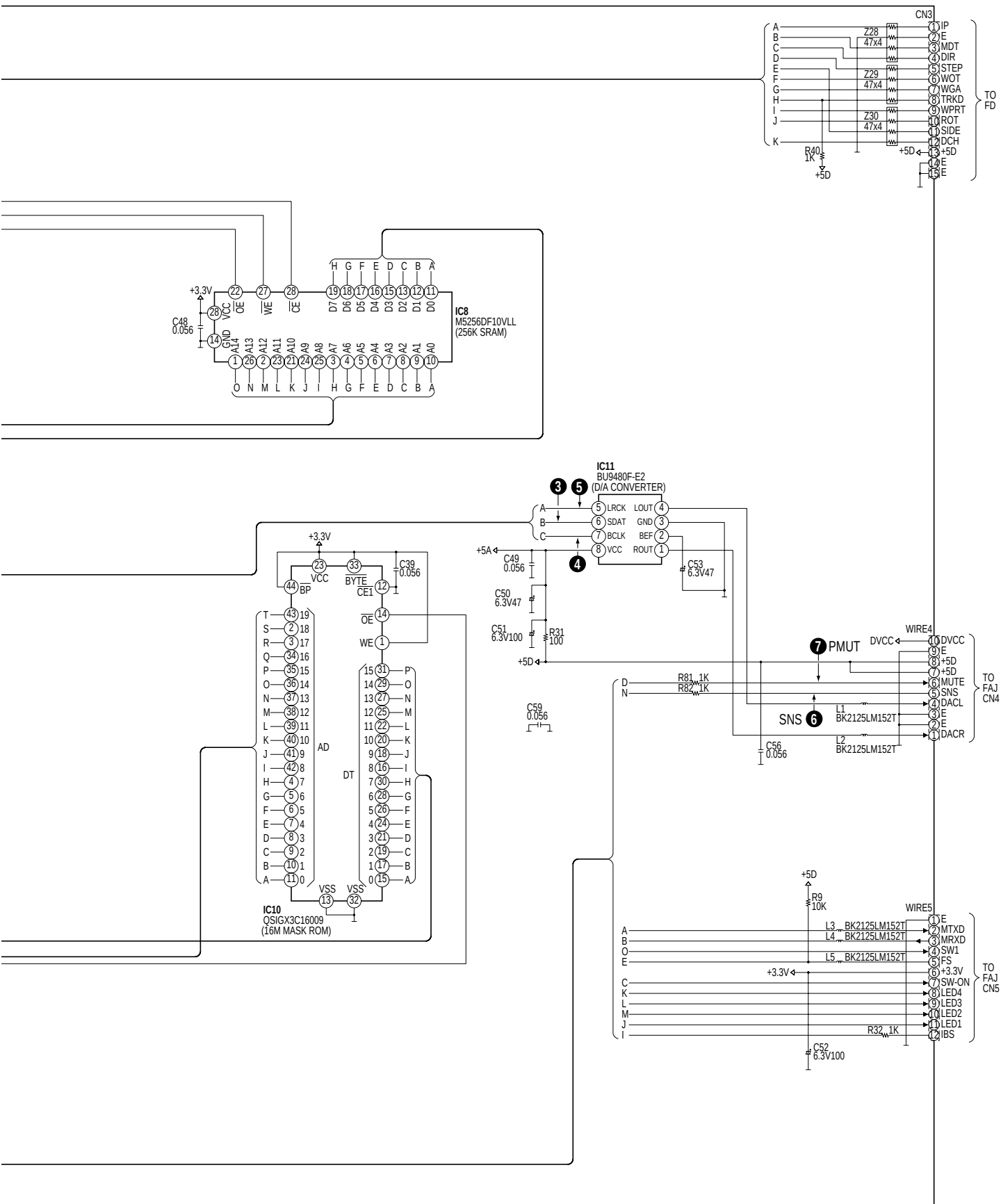




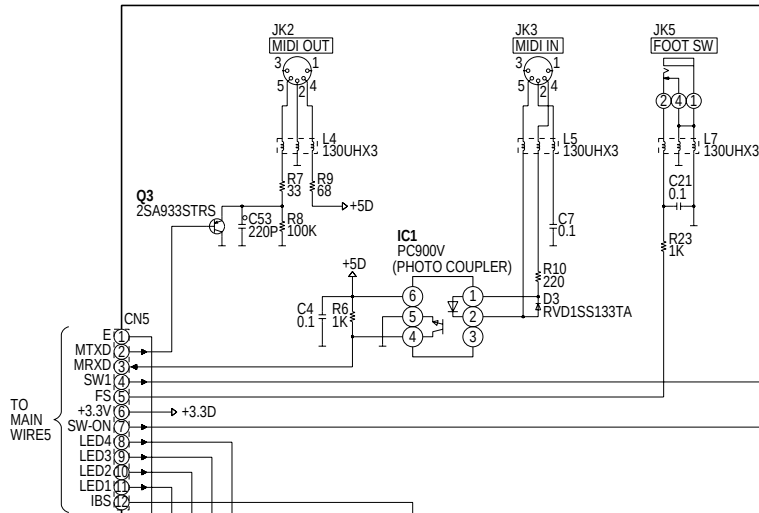




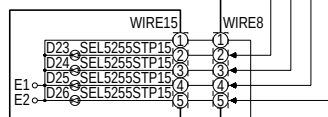




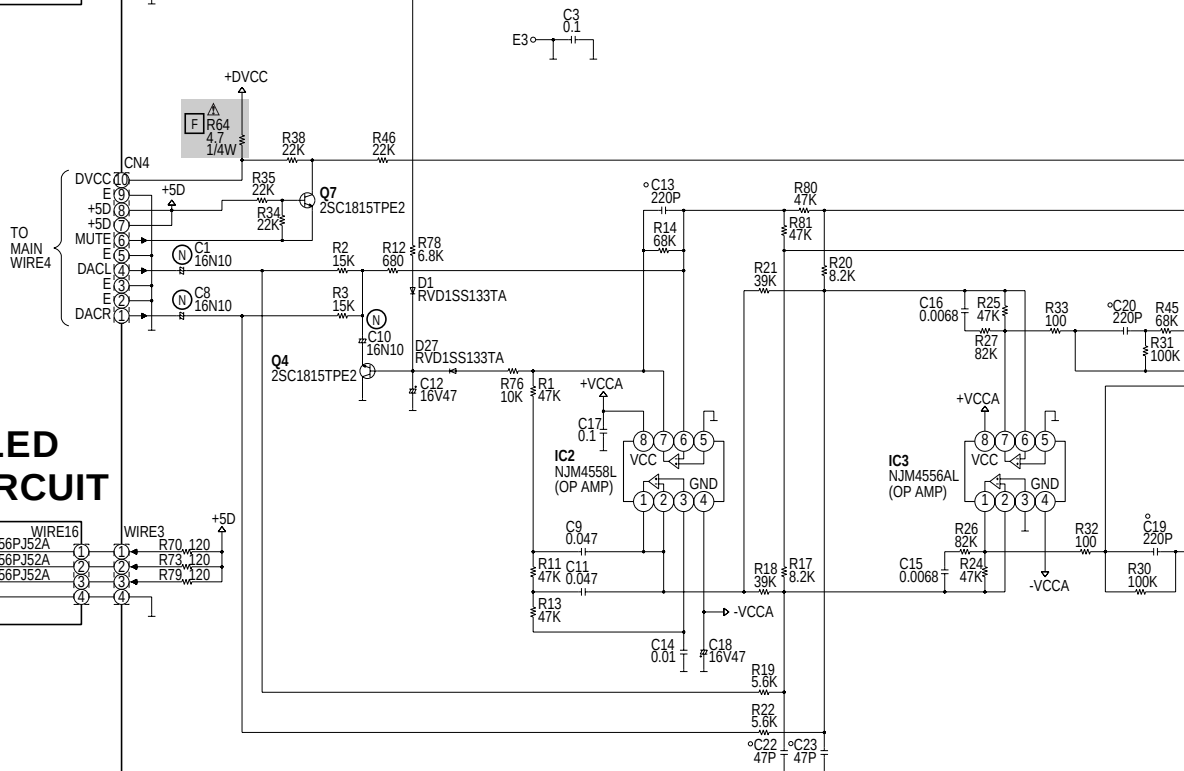
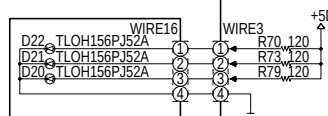
B FAJ CIRCUIT

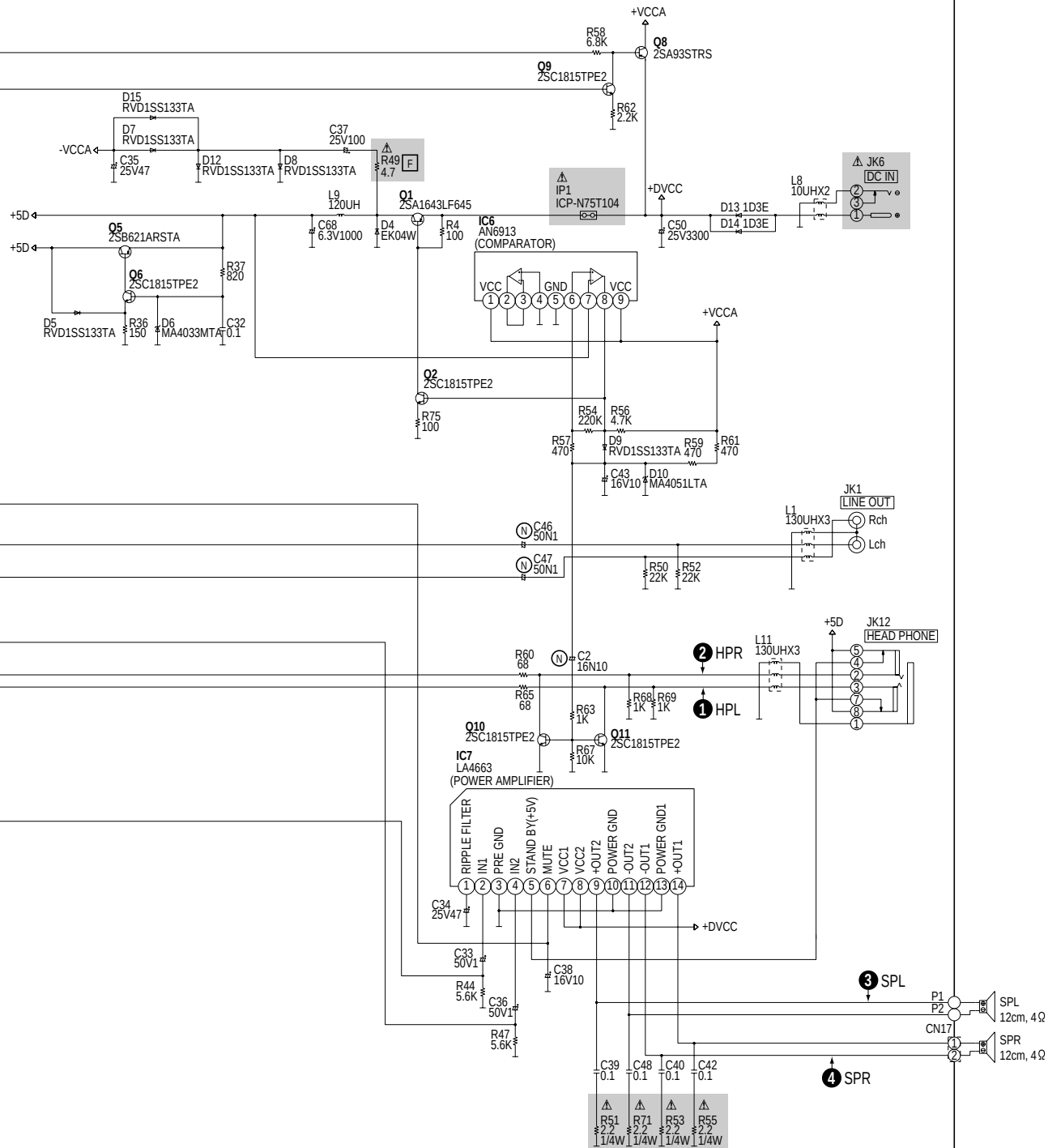


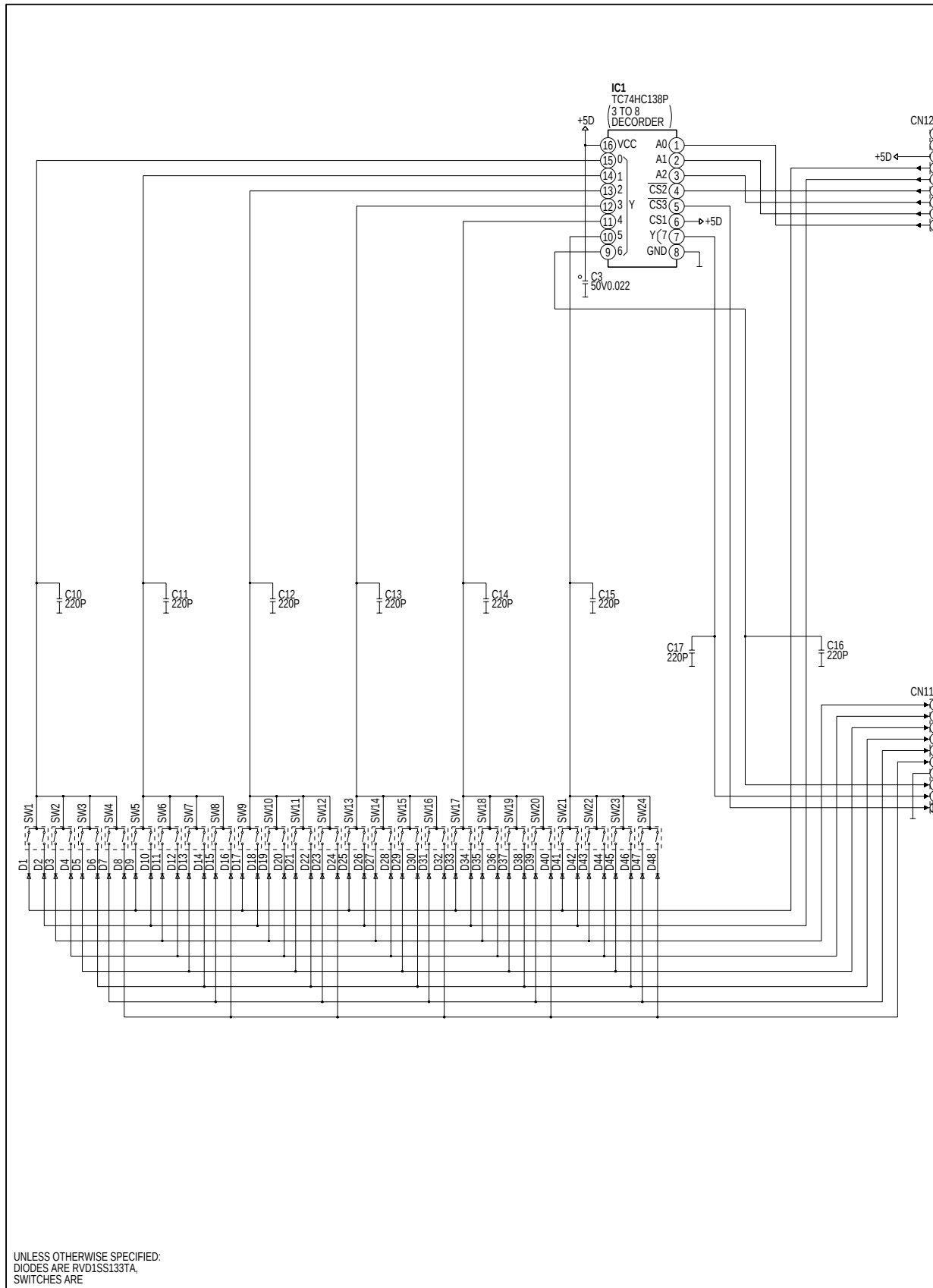
G RLED CIRCUIT



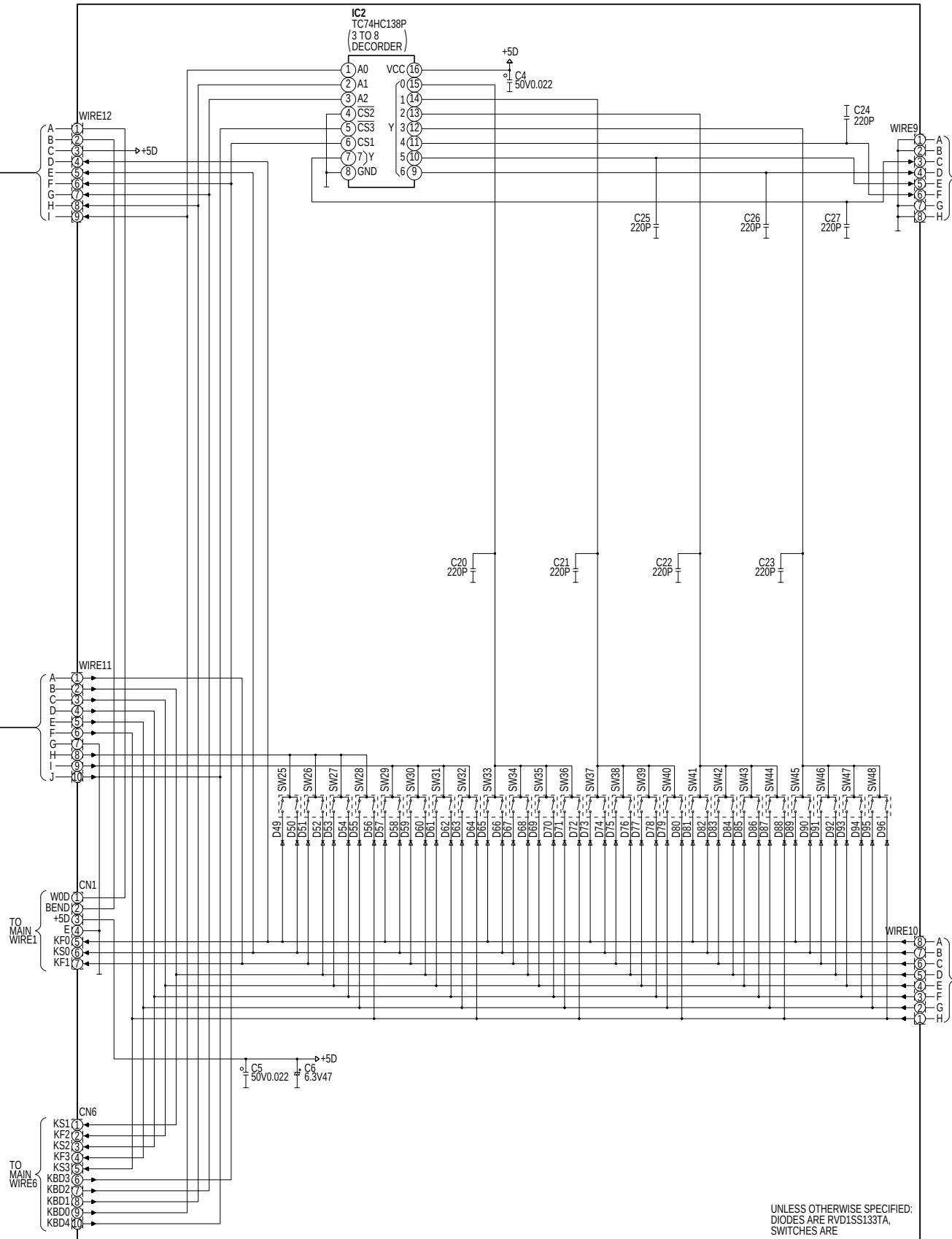
F BLED CIRCUIT



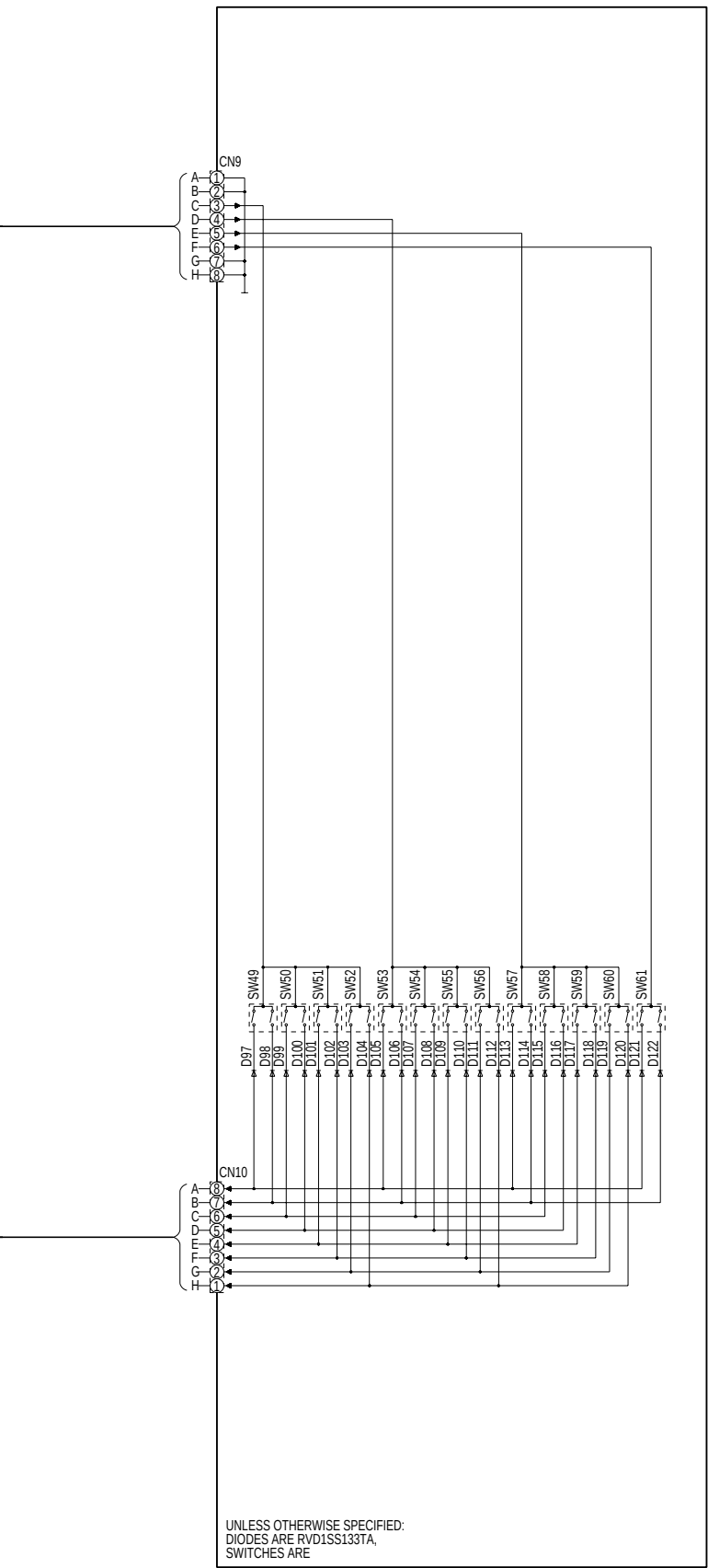




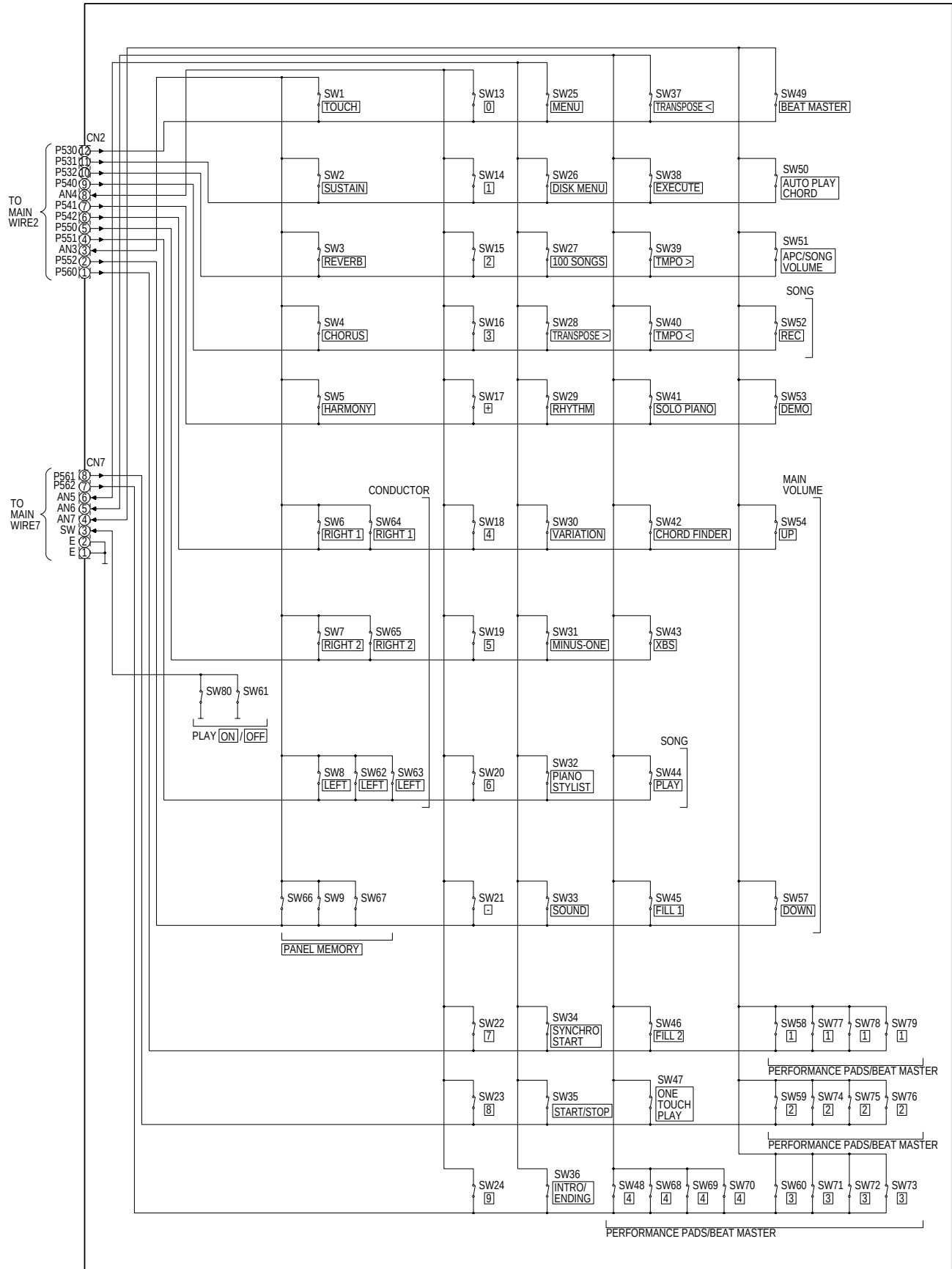
D MKB2 CIRCUIT



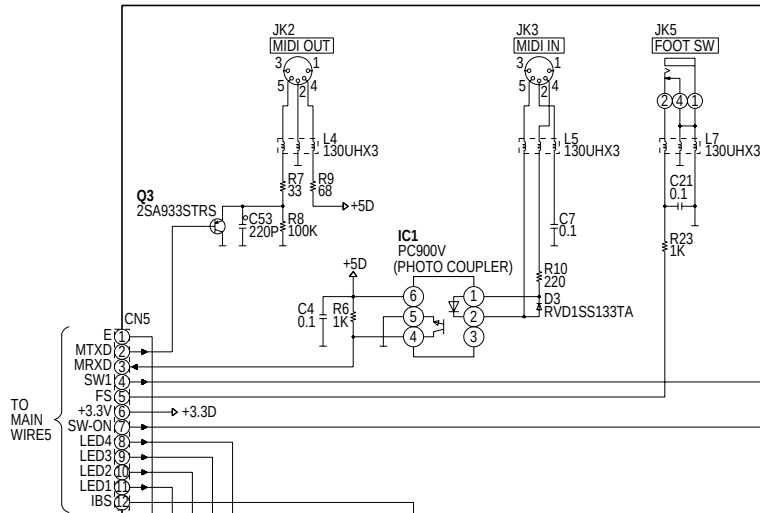
E MKB3 CIRCUIT



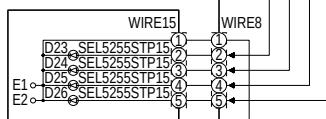
HCPCIRCUIT



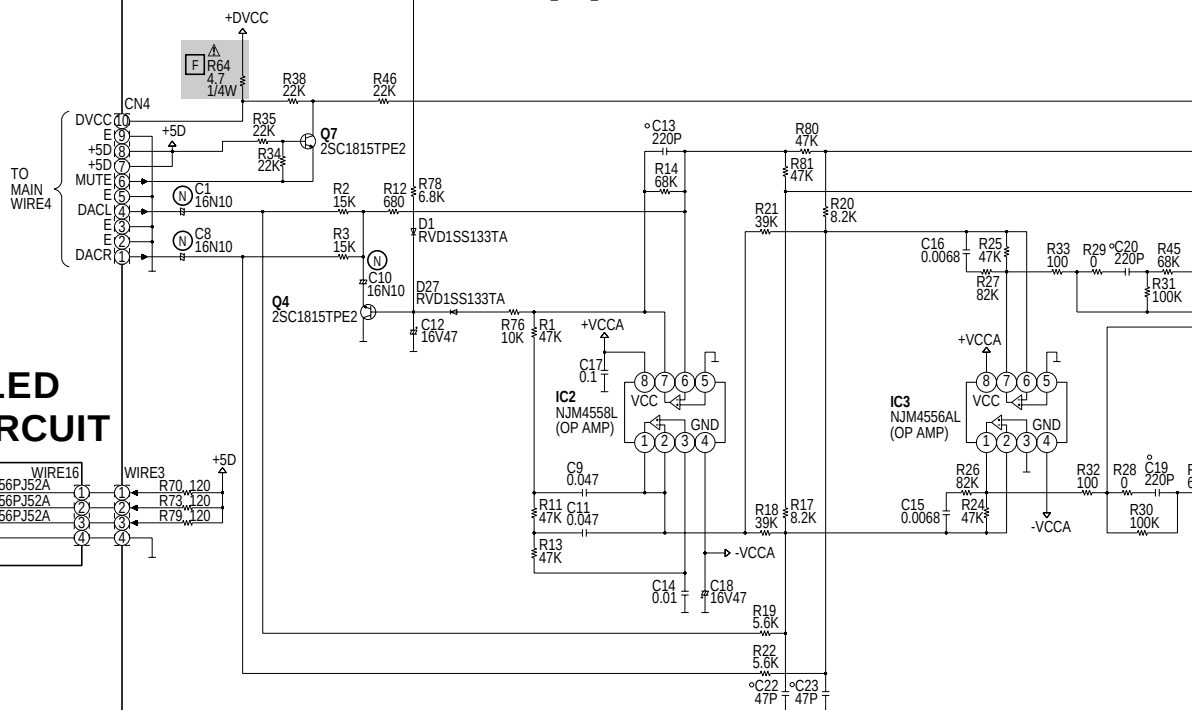
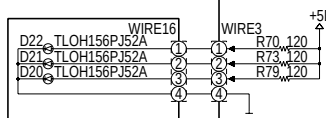
B FAJ CIRCUIT

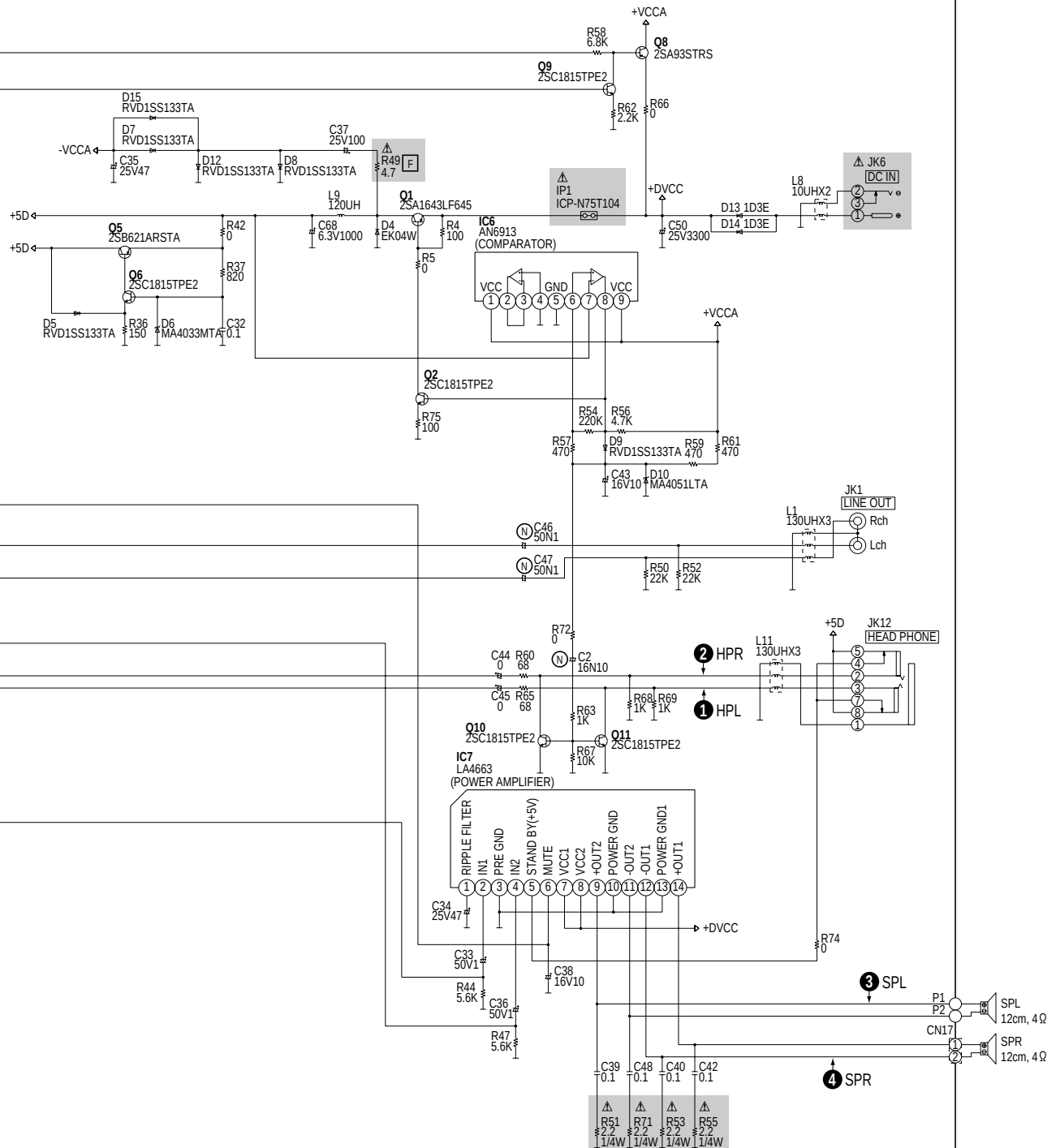


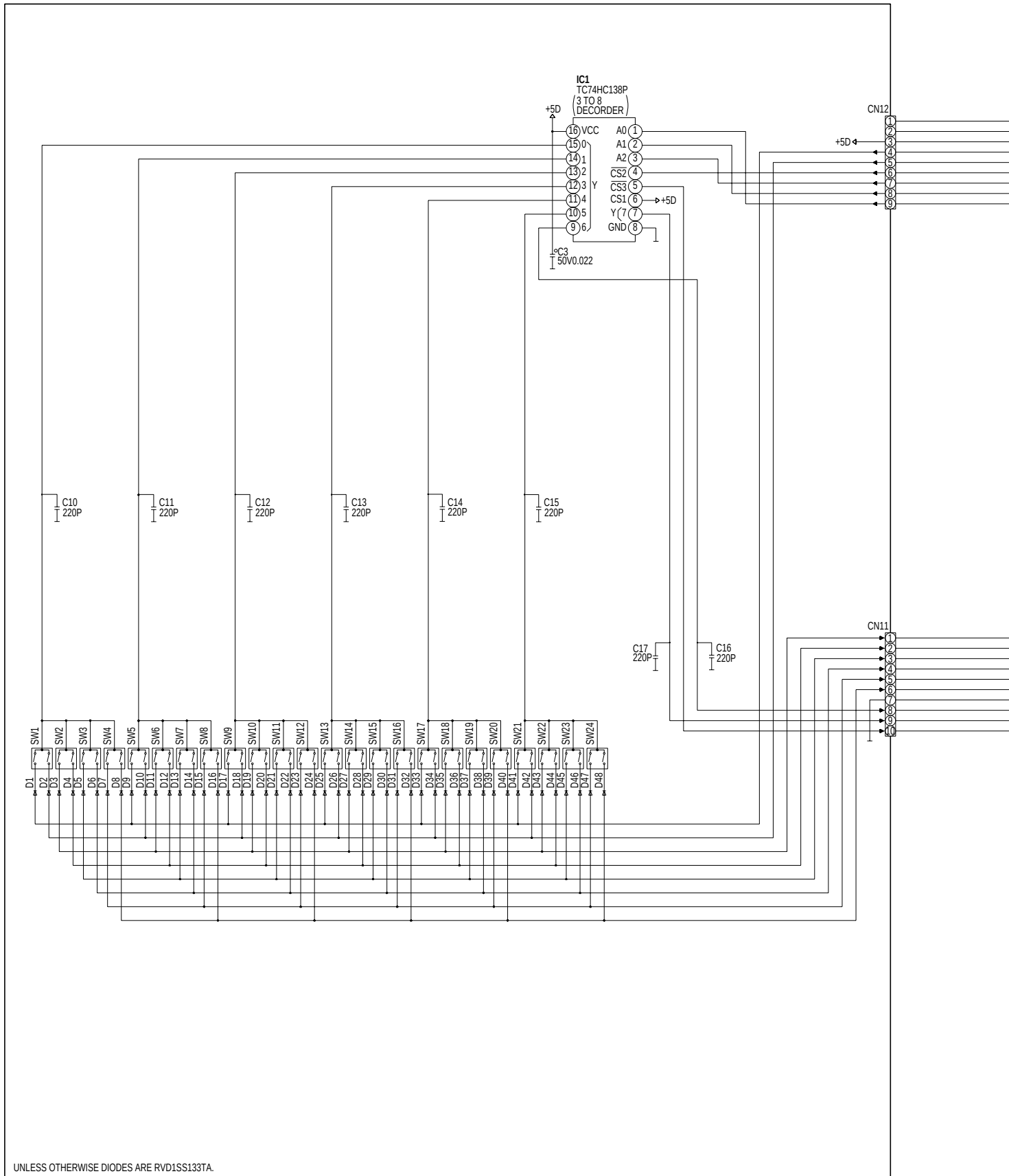
G RLED CIRCUIT



F BLED CIRCUIT



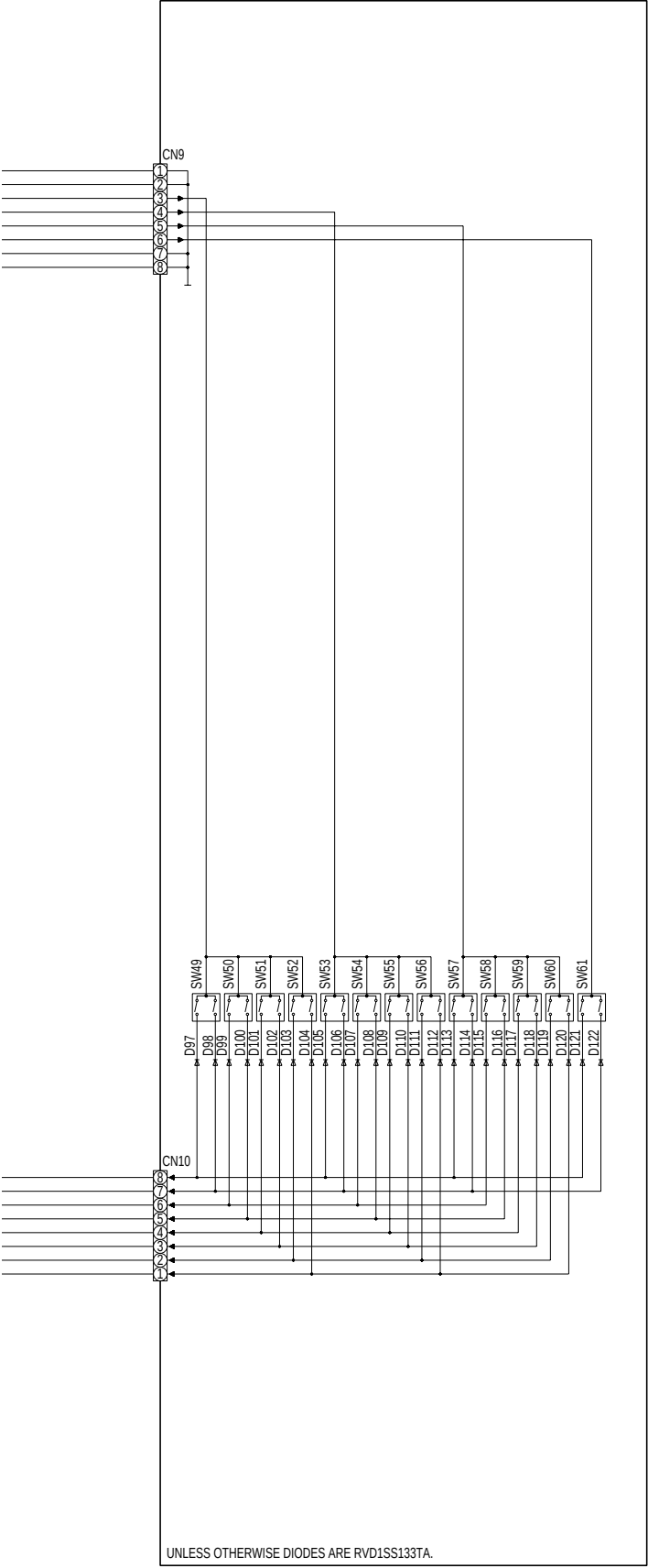




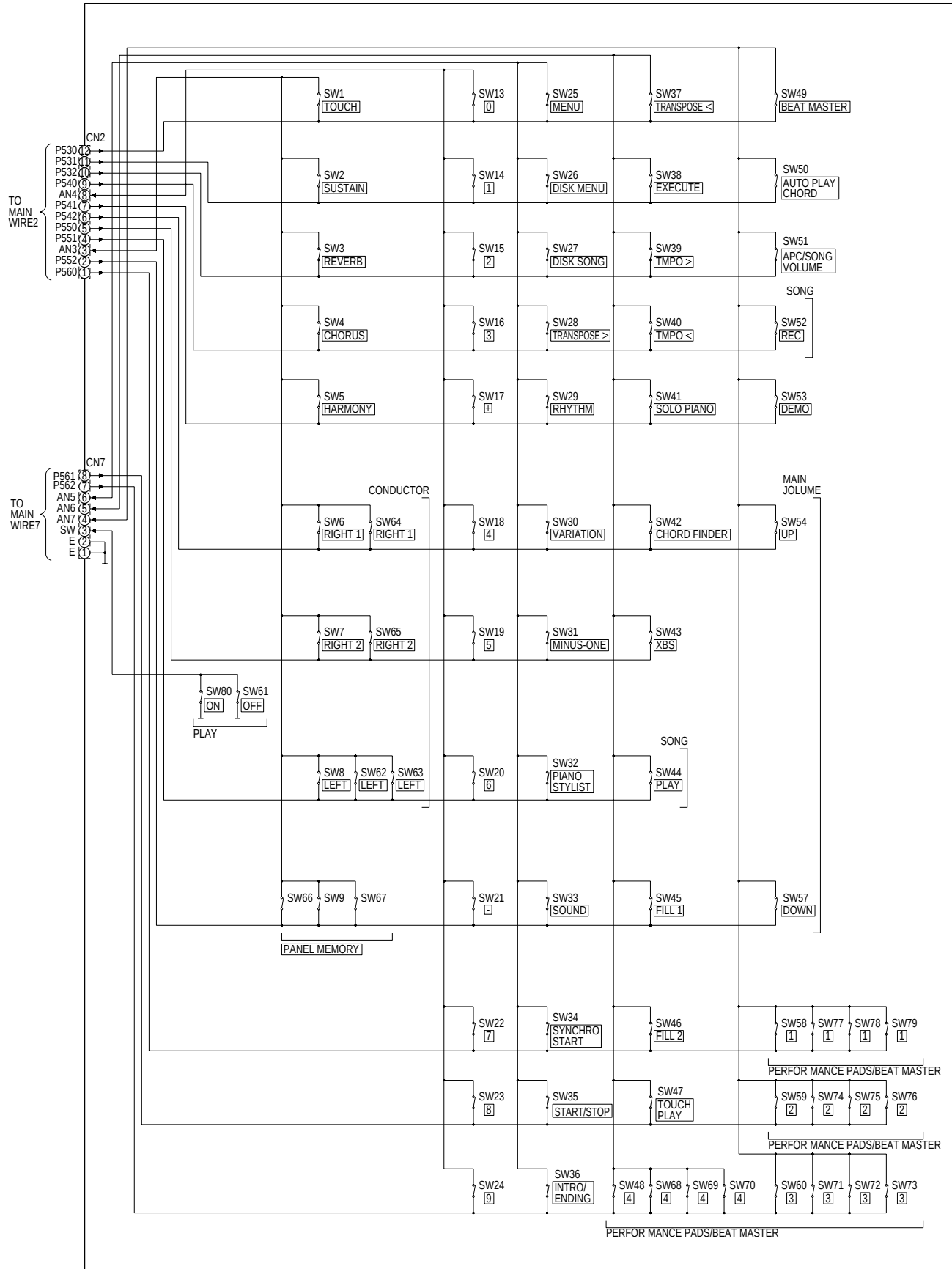
D



E MKB3 CIRCUIT



HCPCIRCUIT



A MAIN P.C.B. (COMPONENT SIDE)

(SXPG234011 [except(P,PY)])
(SXPG234021 [P,PY])

$$\left(\begin{array}{l} \text{SXPG234011 [except(P,PY)]} \\ \text{SXPG234021 [P,PY]} \end{array} \right)$$

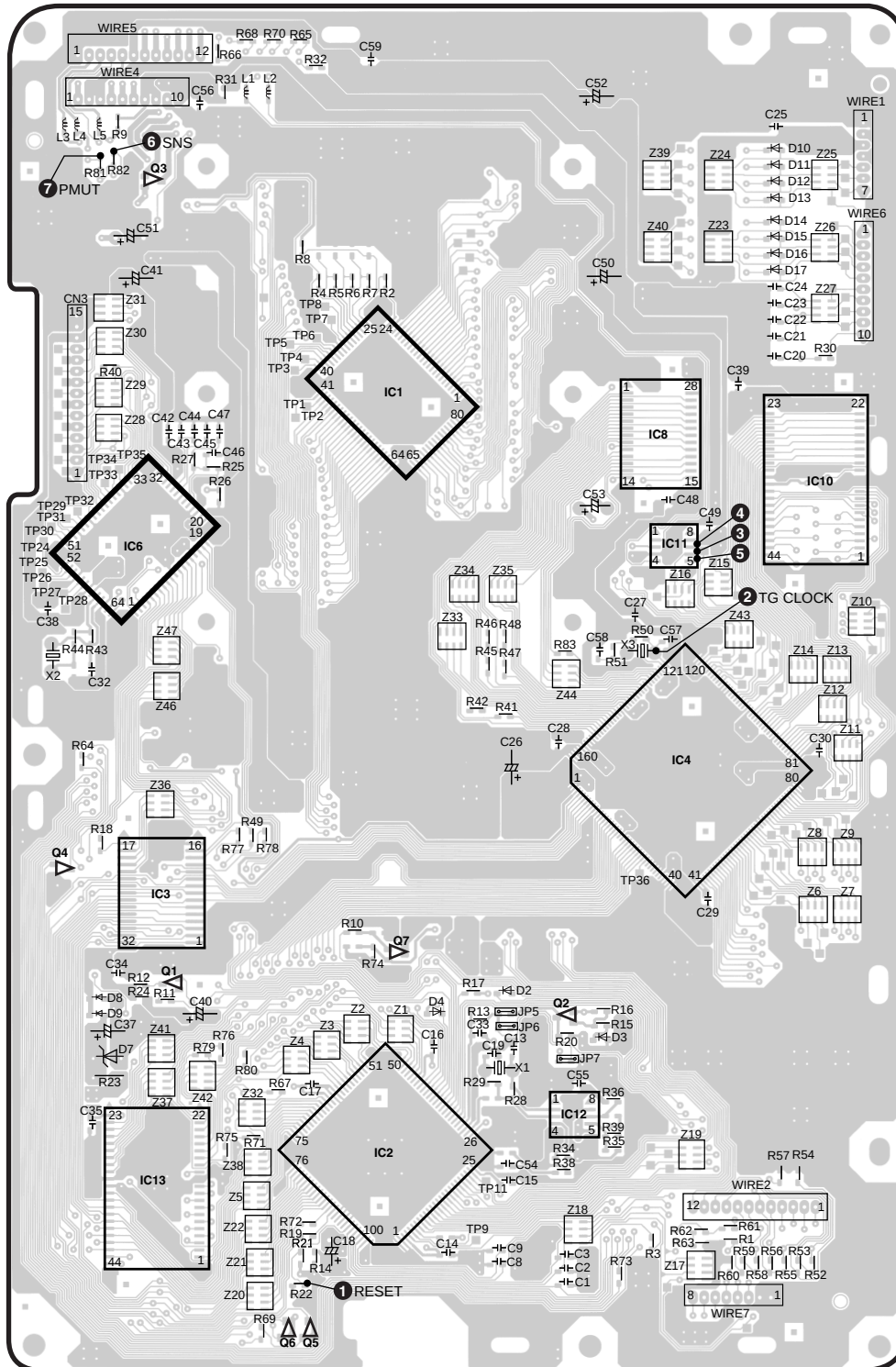
ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
A MAIN P.C.B. (COMPONENT SIDE)									
D7	E-6	WIRE5	E-1	X3	B-4	C40	D-6	C53	B-4
CN3	E-3	WIRE6	A-3	R23	E-6	C41	E-2		
WIRE1	A-2	WIRE7	B-7	C18	D-7	C50	B-2		
WIRE2	B-7	X1	C-6	C26	C-5	C51	E-2		
WIRE4	E-2	X2	E-4	C37	E-6	C52	B-2		

ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
A MAIN P.C.B. (FOIL SIDE)									
IC1	C-3	Z12	E-5	R2	C-3	R46	C-4	C8	C-7
IC2	C-7	Z13	E-4	R3	D-7	R47	C-4	C9	C-7
IC3	B-5	Z14	E-4	R4	B-3	R48	C-4	C13	C-6
IC4	D-5	Z15	D-4	R5	C-3	R49	B-5	C14	C-7
IC6	B-4	Z16	D-4	R6	C-3	R50	D-4	C15	C-7
IC8	D-3	Z17	D-7	R7	C-3	R51	D-4	C16	C-6
IC10	E3	Z18	D-7	R8	B-2	R52	E-7	C17	B-6
IC11	D-4	Z19	D-7	R9	A-2	R53	E-7	C19	C-6
IC12	D-6	Z20	B-7	R10	C-6	R54	E-7	C20	E-3
IC13	B-7	Z21	B-7	R11	B-6	R55	E-7	C21	E-3
Q1	B-6	Z22	B-7	R12	B-6	R56	E-7	C22	E-3
Q2	D-6	Z23	D-2	R13	C-6	R57	E-7	C23	E-3
Q3	B-2	Z24	D-2	R14	B-7	R58	E-7	C24	E-3
Q4	A-5	Z25	E-2	R15	D-6	R59	E-7	C25	E-2
Q5	B-8	Z26	E-2	R16	D-6	R60	D-7	C27	D-4
Q6	B-8	Z27	E-3	R17	C-6	R61	D-7	C28	D-5
Q7	C-6	Z28	A-3	R18	A-5	R62	D-7	C29	D-5
D2	C-6	Z29	A-3	R19	B-7	R63	D-7	C30	E-5
D3	D-6	Z30	A-3	R20	D-6	R64	A-5	C32	A-4
D4	C-6	Z31	A-3	R21	B-7	R65	B-1	C33	C-6
D8	A-6	Z32	B-6	R22	B-7	R66	B-1	C34	A-6
D9	A-6	Z33	C-4	R24	B-6	R67	B-6	C35	A-7
D10	E-2	Z34	C-4	R25	B-3	R68	B-1	C38	A-4
D11	E-2	Z35	C-4	R26	B-3	R69	B-8	C39	D-3
D12	E-2	Z36	B-5	R27	B-3	R70	B-1	C42	B-3
D13	E-2	Z37	B-6	R28	C-6	R71	B-7	C43	B-3
D14	E-2	Z38	B-7	R29	C-6	R72	B-7	C44	B-3
D15	E-2	Z39	D-2	R30	E-3	R73	D-7	C45	B-3
D16	E-2	Z40	D-2	R31	B-2	R74	C-6	C46	B-3
D17	E-2	Z41	B-6	R32	B-1	R75	B-7	C47	B-3
Z1	C-6	Z42	B6	R34	D-7	R76	B-6	C48	D-3
Z2	C-6	Z43	D-4	R35	D-7	R77	B-5	C49	D-3
Z3	C-6	Z44	D-4	R36	D-6	R78	B-5	C54	C-7
Z4	B-6	Z46	B-4	R38	D-7	R79	B-6	C55	D-6
Z5	B-7	Z47	B-4	R39	D-7	R80	B-6	C56	B-2
Z6	E-5	L1	B-2	R40	A-3	R81	A-2	C57	D-4
Z7	E-5	L2	B-2	R41	C-4	R82	A-2	C58	D-4
Z8	E-5	L3	A-2	R42	C-4	R83	D-4	C59	C-1
Z9	E-5	L4	A-2	R43	A-4	C1	D-7	JP5	C-6
Z10	E-4	L5	A-2	R44	A-4	C2	D-7		
Z11	E-5	R1	D-7	R45	C-4	C3	D-7		

A MAIN P.C.B. (FOIL SIDE)



(SXPG234011 [except(P,PY)])
(SXPG234021 [P,PY])

A

B

C

D

E

F

1

B FAJ P.C.B.

2

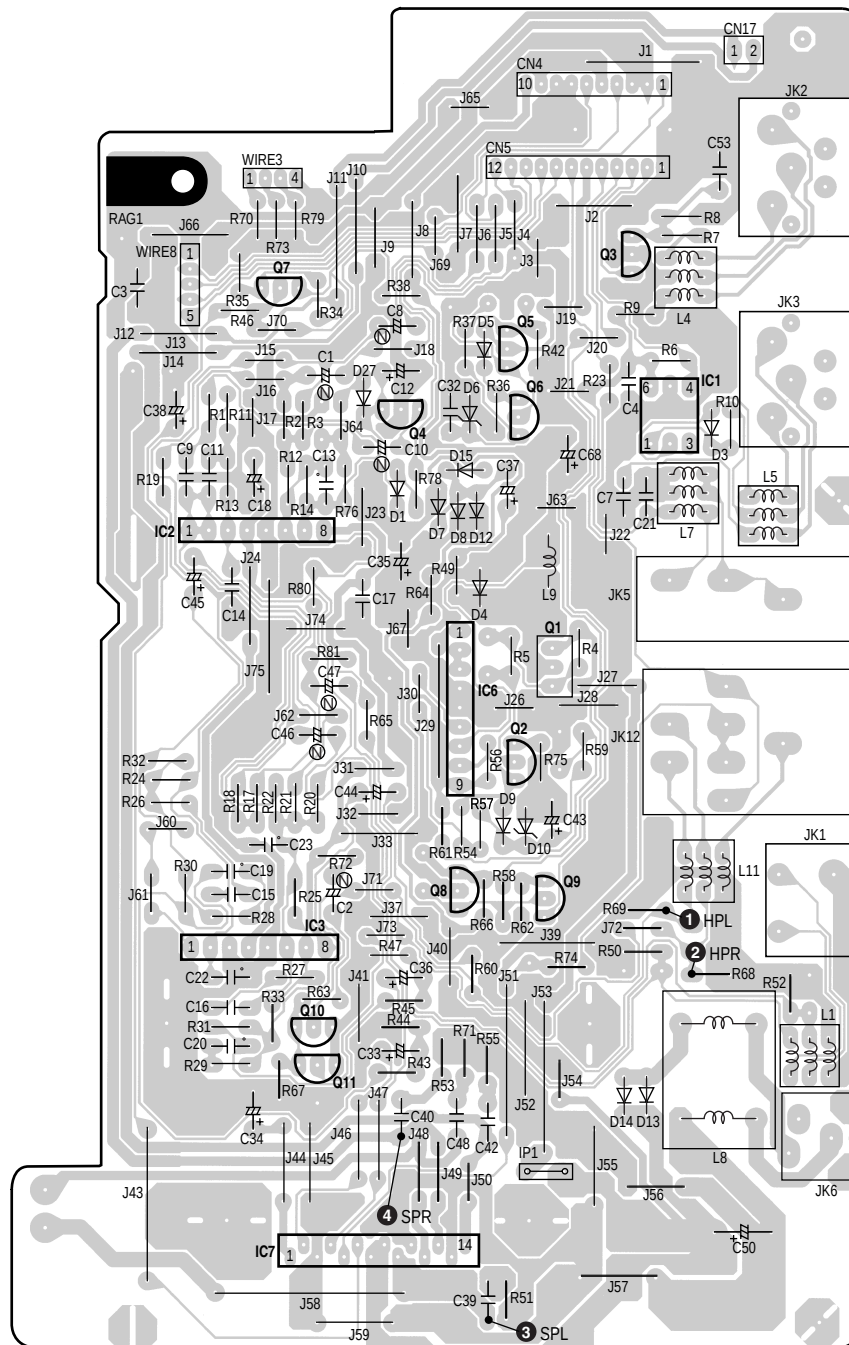
3

4

5

6

7

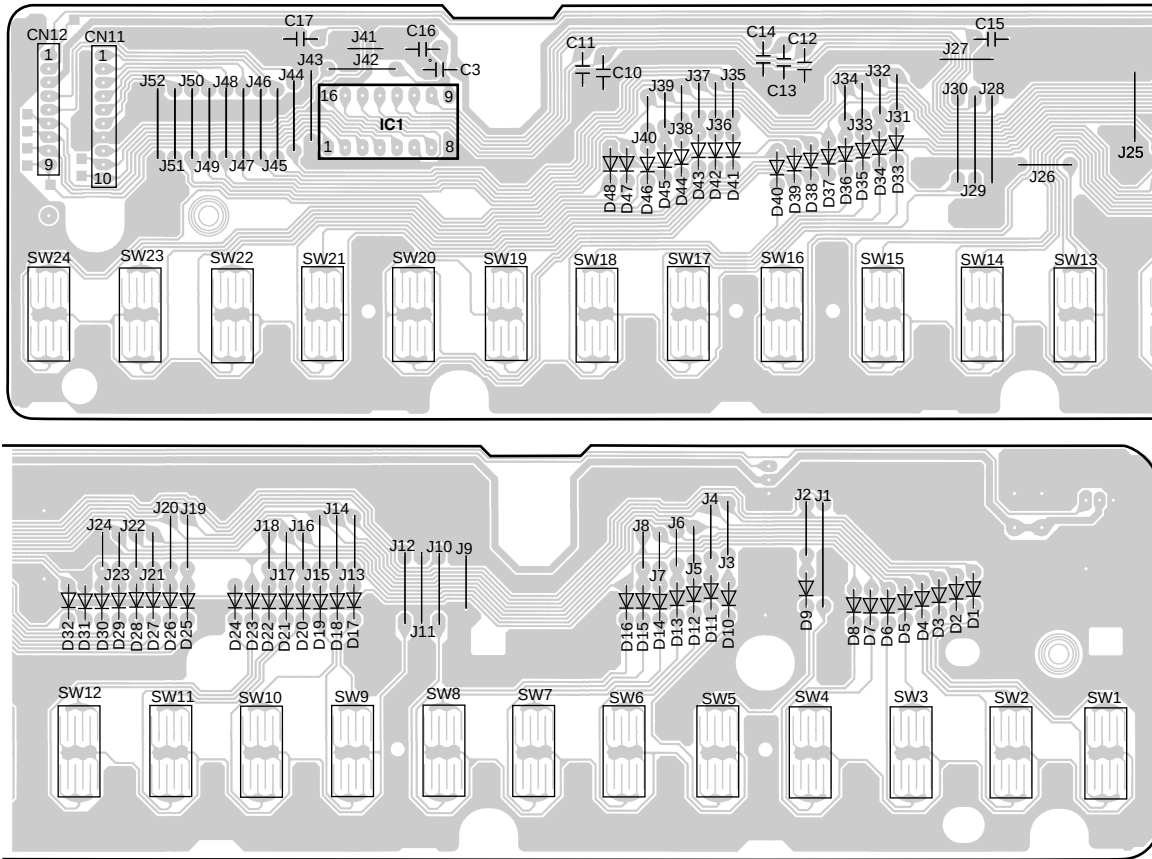


(SXPG234111)

ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
B FAJ P.C.B.									
IC1	D-3	WIRE3	B-2	R27	B-5	R64	C-4	C19	B-5
IC2	B-3	WIRE8	B-2	R28	B-5	R65	C-4	C20	B-6
IC3	B-5	L1	E-6	R29	B-6	R66	C-6	C21	D-3
IC6	C-4	L4	D-2	R30	B-5	R67	B-6	C22	B-5
IC7	C-7	L5	E-3	R31	B-6	R68	D-5	C23	B-5
Q1	D-4	L7	D-3	R32	B-5	R69	D-5	C32	C-3
Q2	C-4	L8	D-6	R33	B-6	R70	B-2	C33	C-6
Q3	D-2	L9	D-4	R34	C-2	R71	C-6	C34	B-6
Q4	C-3	L11	D-5	R35	B-2	R72	C-5	C35	C-4
Q5	C-3	R1	B-3	R36	C-3	R73	B-2	C36	C-5
Q6	C-3	R2	B-3	R37	C-3	R74	D-5	C37	C-3
Q7	B-2	R3	C-3	R38	C-2	R75	D-4	C38	B-3
Q8	C-5	R4	D-4	R42	D-3	R76	C-3	C39	C-7
Q9	D-5	R5	C-4	R43	C-6	R78	C-3	C40	C-6
Q10	C-6	R6	D-3	R44	C-6	R79	B-2	C42	C-6
Q11	C-6	R7	D-2	R45	C-6	R80	C-4	C43	D-5
D1	C-3	R8	D-2	R46	B-3	R81	C-4	C44	C-5
D3	D-3	R9	D-2	R47	C-5	C1	C-3	C45	B-4
D4	C-4	R10	D-3	R49	C-4	C2	C-5	C46	C-4
D5	C-3	R11	B-3	R50	D-5	C3	B-2	C47	C-4
D6	C-3	R12	B-3	R51	C-7	C4	D-3	C48	C-6
D7	C-3	R13	B-3	R52	E-6	C7	D-3	C50	D-6
D8	C-3	R14	C-3	R53	C-6	C8	C-3	C53	D-2
D9	C-5	R17	B-5	R54	C-5	C9	B-3	C68	D-3
D10	C-5	R18	B-5	R55	C-6	C10	C-3	IP1	D-6
D12	C-3	R19	B-3	R56	C-5	C11	B-3	JK1	E-5
D13	D-6	R20	C-5	R57	C-5	C12	C-3	JK2	E-5
D14	D-6	R21	B-5	R58	C-5	C13	C-3	JK3	E-3
D15	C-3	R22	B-5	R59	D-4	C14	B-4	JK5	D-4
D27	C-3	R23	D-3	R60	C-5	C15	B-5	JK6	E-6
CN4	D2	R24	B-5	R61	C-5	C16	B-6	JK12	D-4
CN5	D-2	R25	B-5	R62	C-5	C17	C-4		
CN17	D-1	R26	B-5	R63	C-6	C18	B-3		

C MKB1 P.C.B.



(SXPG234311)

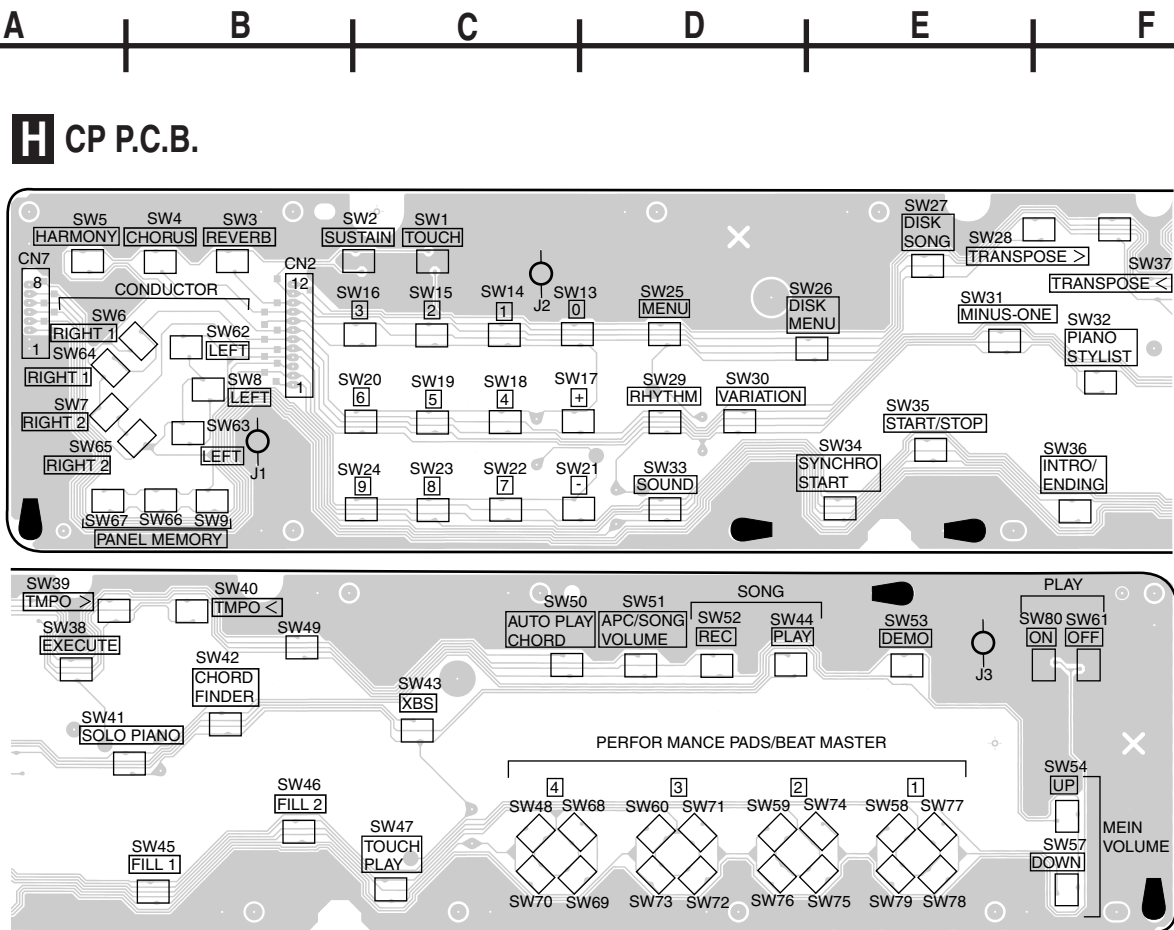
ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
C MKB1 P.C.B.									
IC1	C-2	D17	B-4	D34	E-2	C3	C-1	SW9	B-4
D1	E-4	D18	B-4	D35	E-2	C10	D-1	SW10	B-4
D2	E-4	D19	B-4	D36	E-2	C11	C-1	SW11	B-4
D3	E-4	D20	B-4	D37	E-2	C12	D-1	SW12	A-4
D4	E-4	D21	B-4	D38	D-2	C13	D-1	SW13	F-2
D5	E-4	D22	B-4	D39	D-2	C14	D-1	SW14	E-2
D6	E-4	D23	B-4	D40	D-2	C15	E-1	SW15	E-2
D7	E-4	D24	B-4	D41	D-2	C16	C-1	SW16	D-2
D8	E-4	D25	B-4	D42	D-2	C17	B-1	SW17	D-2
D9	D-4	D26	B-4	D43	D-2	SW1	F-4	SW18	D-2
D10	D-4	D27	B-4	D44	D-2	SW2	E-4	SW19	C-2
D11	D-4	D28	B-4	D45	D-2	SW3	E-4	SW20	C-2
D12	D-4	D29	A-4	D46	D-2	SW4	E-4	SW21	B-2
D13	D-4	D30	A-4	D47	D-2	SW5	D-4	SW22	B-2
D14	D-4	D31	A-4	D48	D-2	SW6	D-4	SW23	B-2
D15	D-4	D32	A-4	CN11	A-1	SW7	C-4	SW24	A-2
D16	D-4	D33	E-2	CN12	A-1	SW8	C-4		

This micrograph shows the output stage of the 74VHC04. It features three output buffer transistors labeled D20, D21, and D22. A connection point labeled WIRE16 is highlighted with a box containing the numbers 1, 2, and 4, indicating the specific pins or connections involved.

PCB layout for the bottom of the board. Components D23, D24, D25, and D26 are shown as diodes. The WIRE15 connector is located on the right side, with pins numbered 1 and 5.

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
G RLED P.C.B.									
D23	D-5	D24	C-5	D25	C-5	D26	B-5	WIRE15	E-5



ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
H CP P.C.B.									
CN2	B-2	SW18	C-2	SW34	E-2	SW51	D-3	SW69	C-4
CN7	A-2	SW19	C-2	SW35	E-2	SW52	D-3	SW70	C-4
SW1	C-1	SW20	C-2	SW36	F-2	SW53	E-3	SW71	D-4
SW2	C-1	SW21	C-2	SW38	A-3	SW54	F-4	SW72	D-4
SW3	B-1	SW22	C-2	SW39	A-3	SW57	F-4	SW73	D-4
SW4	B-1	SW23	C-2	SW40	B-3	SW58	E-4	SW74	E-4
SW5	A-1	SW24	C-2	SW41	B-4	SW59	D-4	SW75	E-4
SW6	A-2	SW25	D-2	SW42	B-3	SW60	D-4	SW76	D-4
SW7	A-2	SW26	D-2	SW43	C-3	SW61	F-3	SW77	E-4
SW8	B-2	SW27	E-1	SW44	D-3	SW62	B-2	SW78	E-4
SW9	B-3	SW28	E-1	SW45	B-4	SW63	B-2	SW79	E-4
SW13	C-2	SW29	D-2	SW46	B-4	SW64	A-2	SW80	F-3
SW14	C-2	SW30	D-2	SW47	C-4	SW65	A-2		
SW15	C-2	SW31	E-2	SW48	C-4	SW66	B-3		
SW16	C-2	SW32	F-2	SW49	B-3	SW67	A-3		
SW17	C-2	SW33	D-2	SW50	C-3	SW68	C-4		

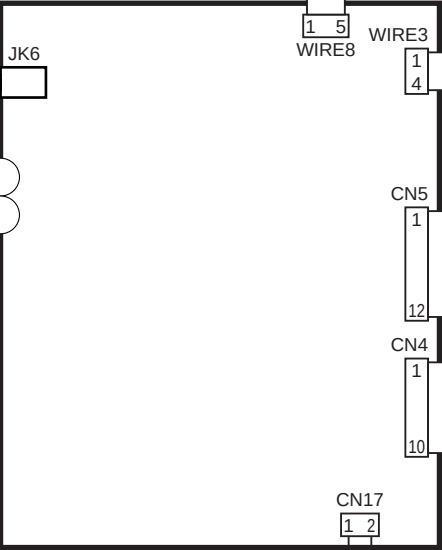
CP SXPg234811



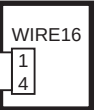
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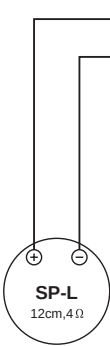
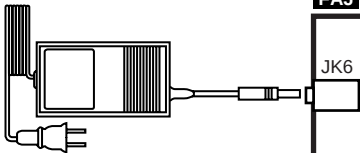
FAJ SXPg234111A



BLed SXPg234111B



AC ADAPTOR



WIRE15

1 5

QEUGS5K12AYZ

WIRE8

1 5

WIRE3

1

4

WIRE16

1

4

QEUGS4K10AYZ

CN5

1

12

QEUGSCK10AYZ

CN4

1

10

QEUGSAK10AYZ

CN17

1

2

MKB1 SXPg234311A



QEUGS8K08BYZ

CN11 CN12

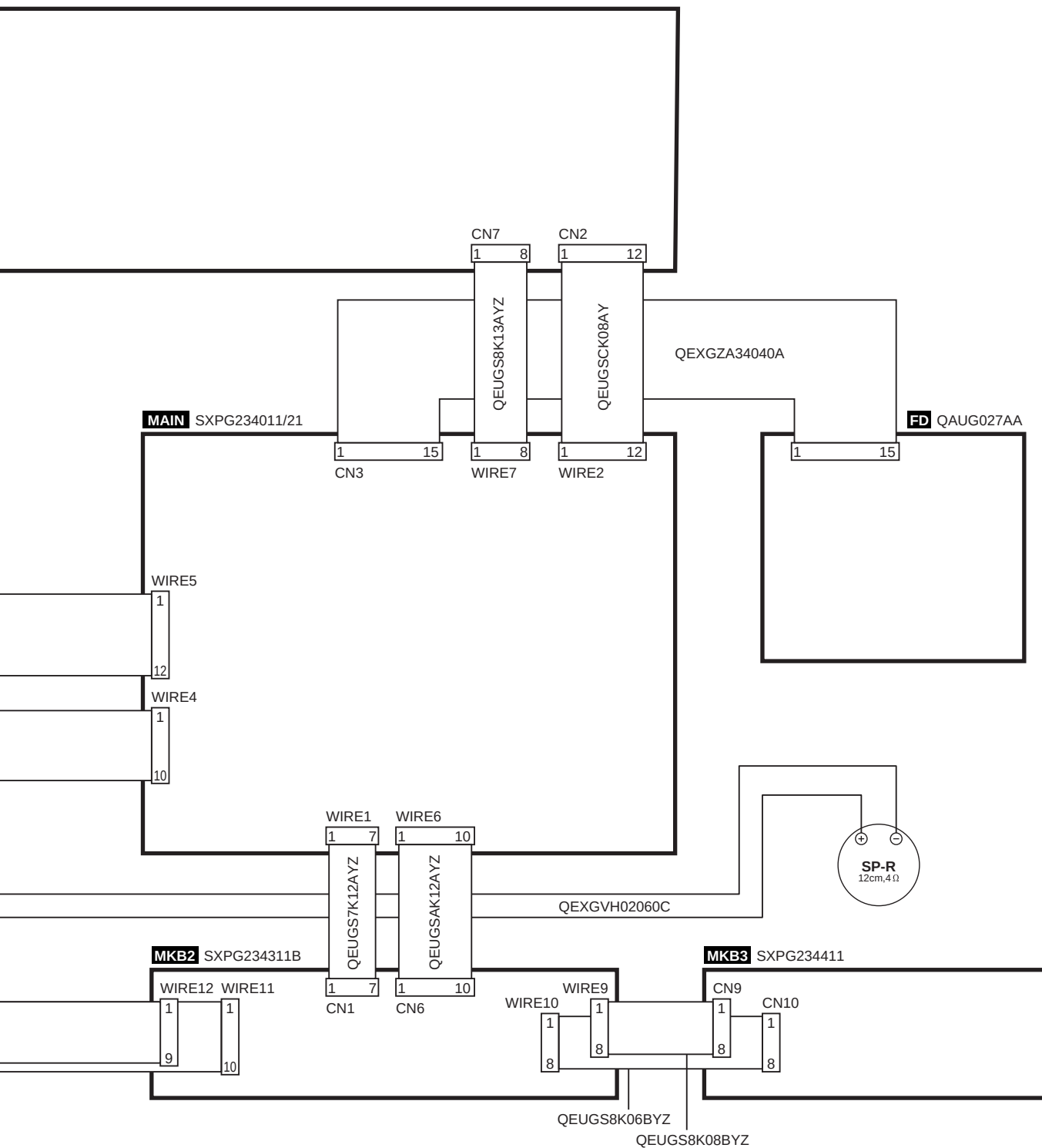
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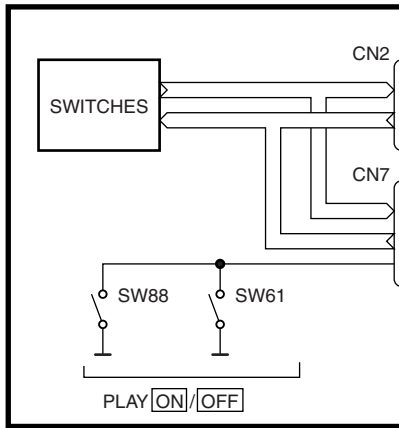
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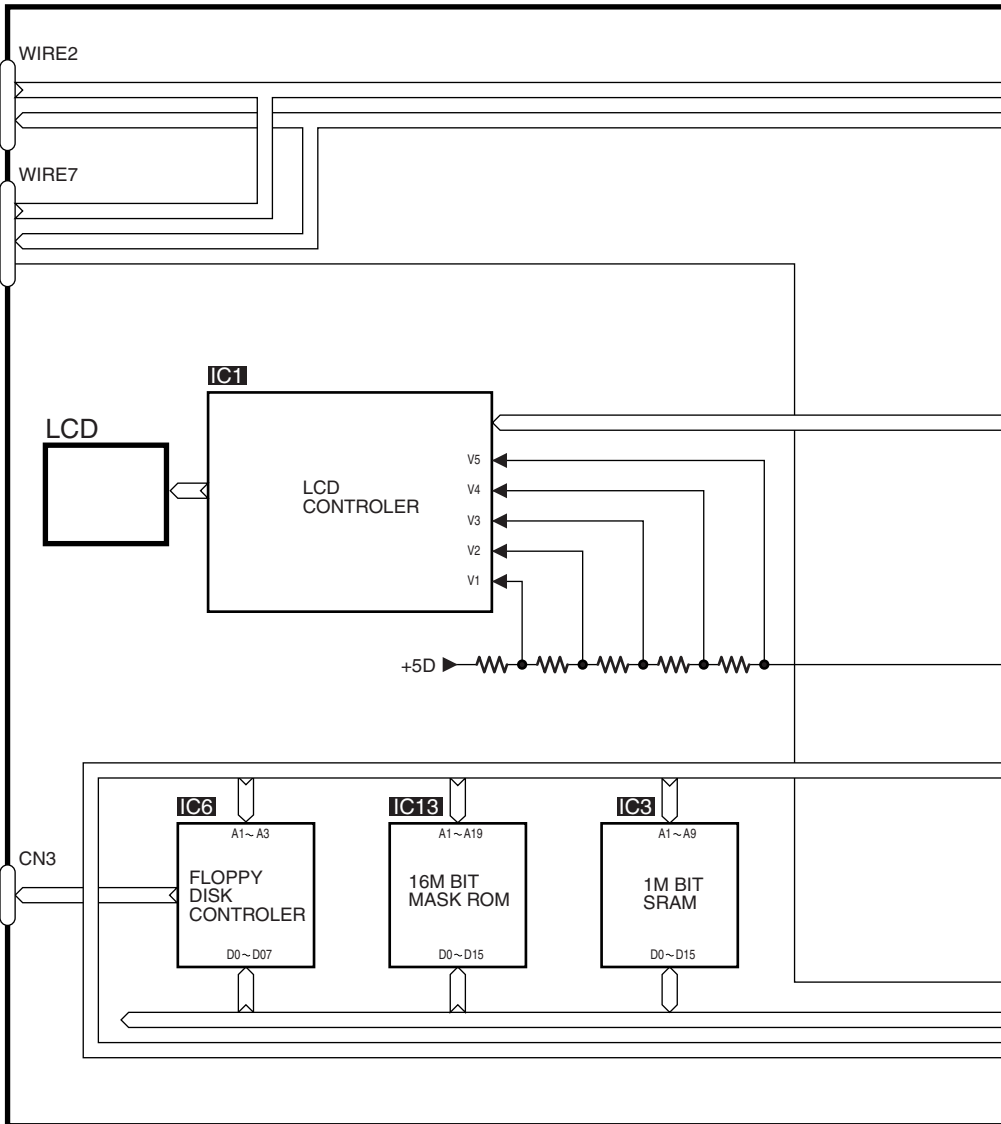


Block Diagram

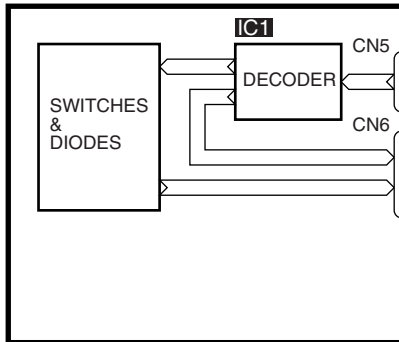
H CP



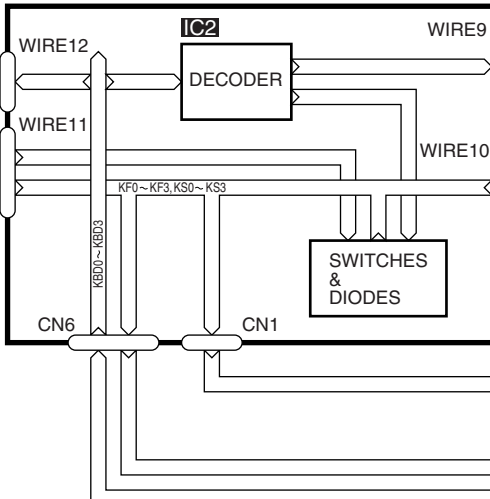
A MAIN



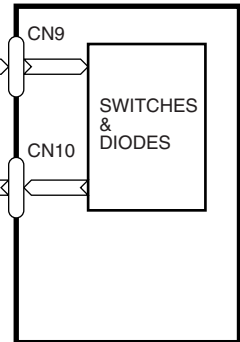
C MKB1

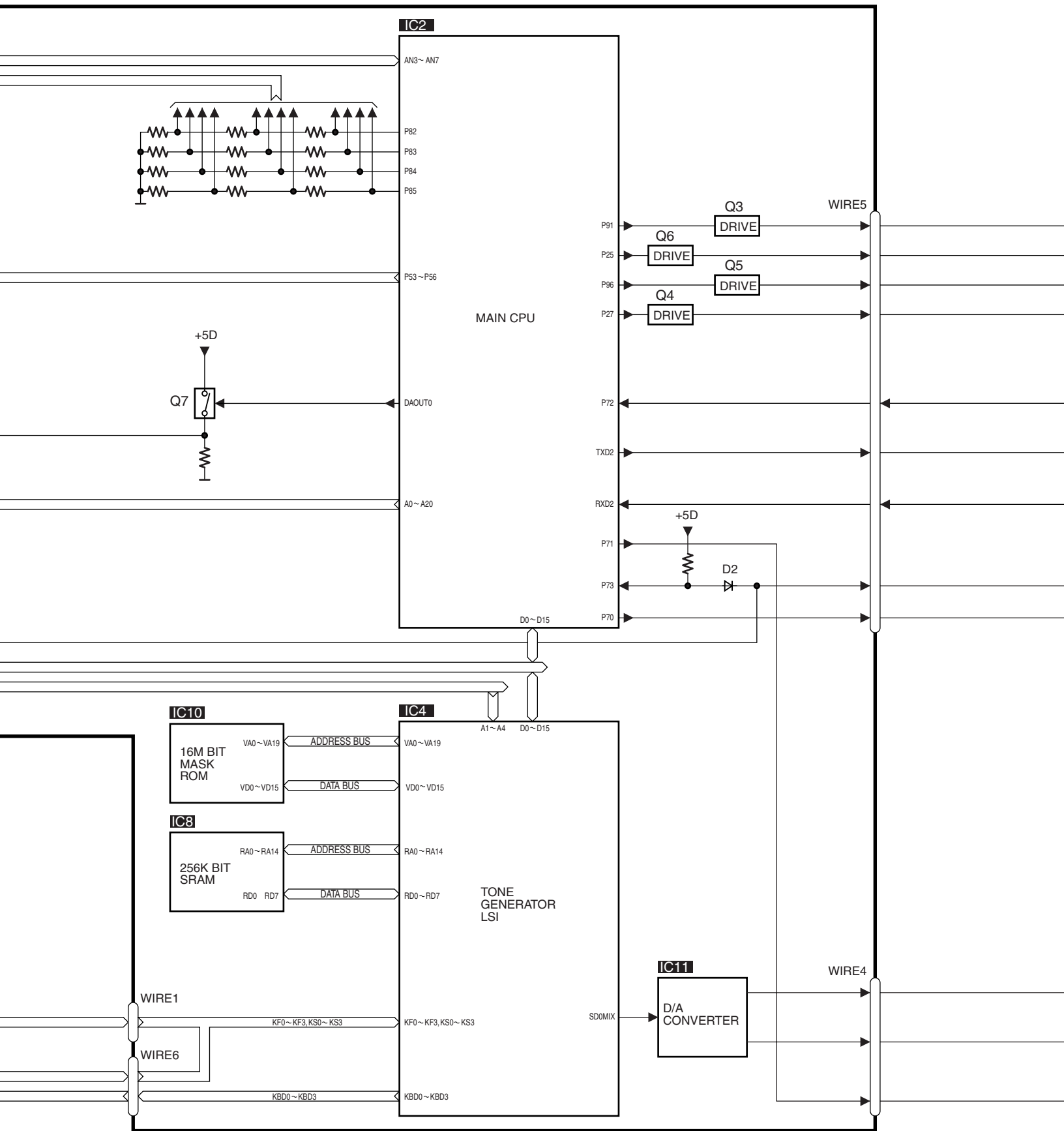


D MKB2



E MKB3

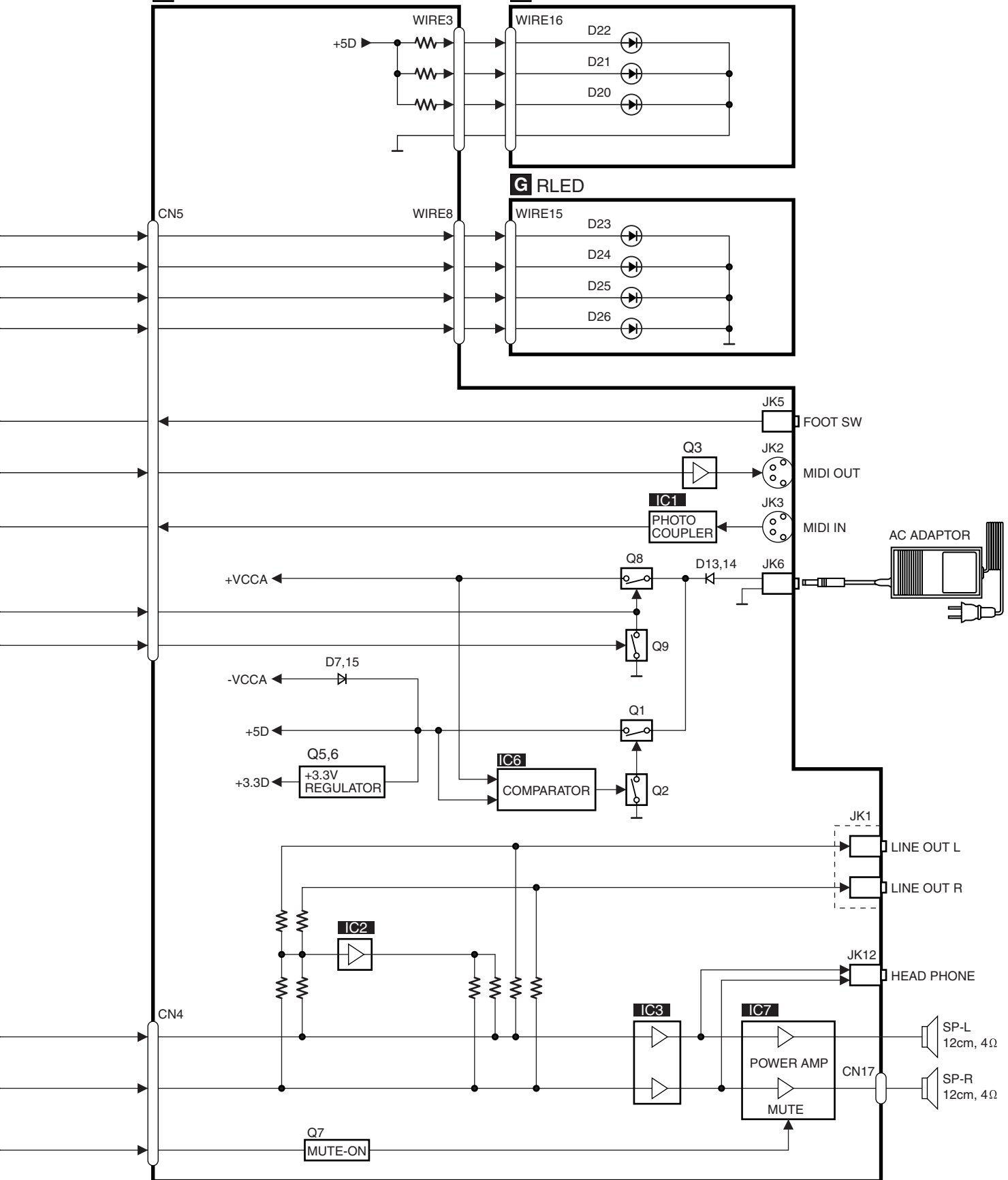




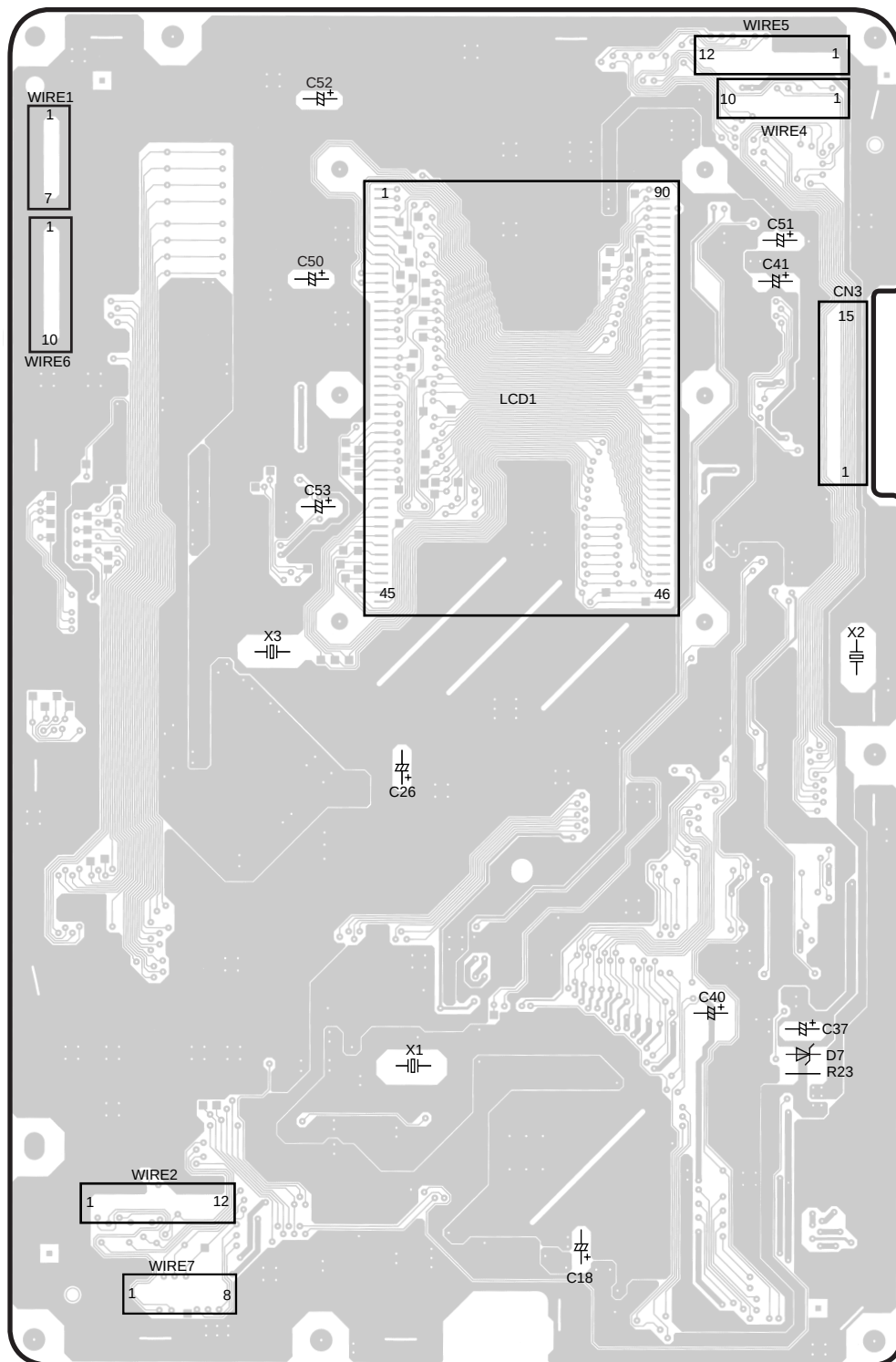
B FAJ

F BLED

G RLED



A MAIN P.C.B. (COMPONENT SIDE)



(SXPG234011 [except(P,PY)])
(SXPG234021 [P,PY])

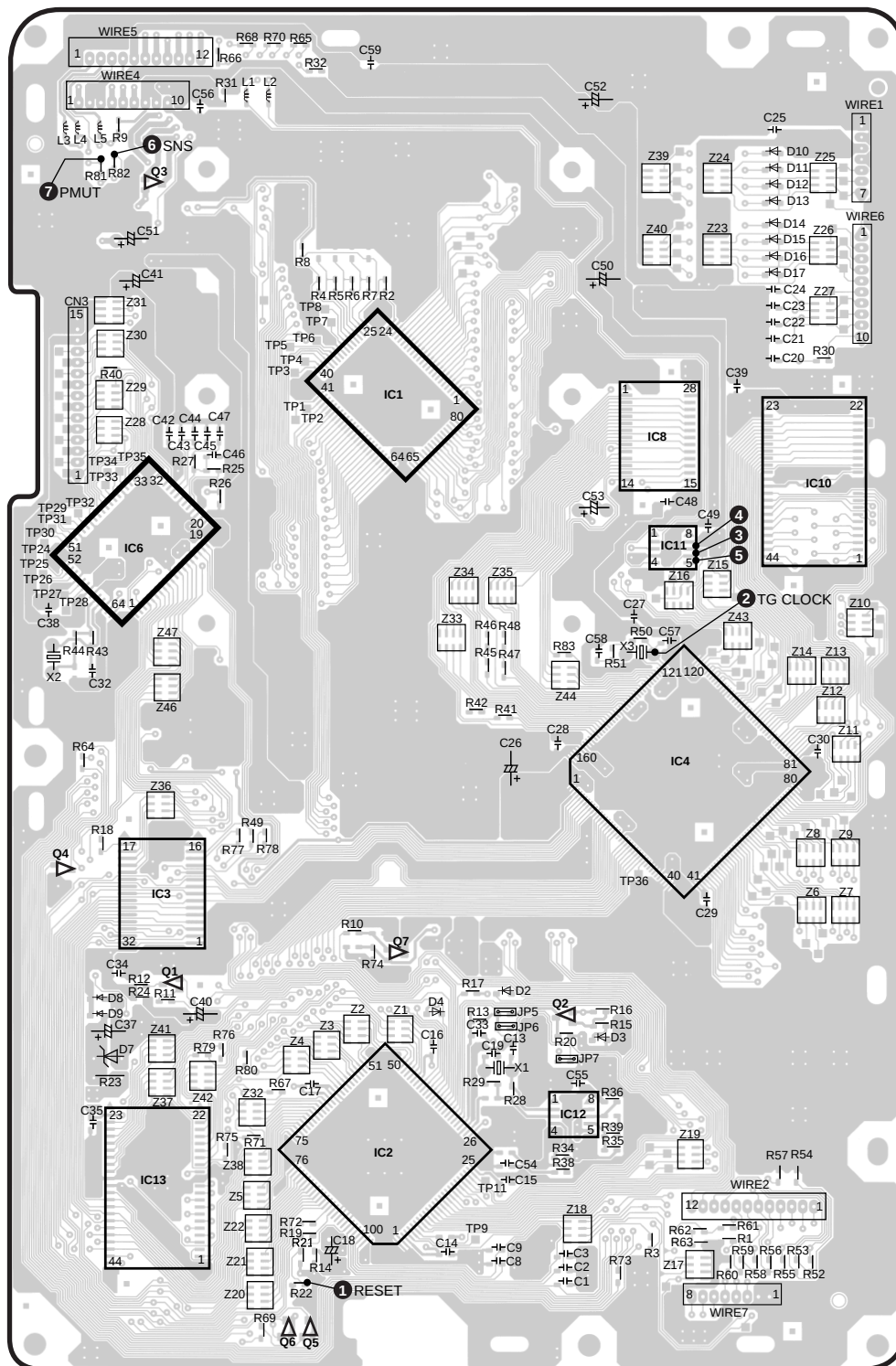
ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
A MAIN P.C.B. (COMPONENT SIDE)									
D7	E-6	WIRE5	E-1	X3	B-4	C40	D-6	C53	B-4
CN3	E-3	WIRE6	A-3	R23	E-6	C41	E-2		
WIRE1	A-2	WIRE7	B-7	C18	D-7	C50	B-2		
WIRE2	B-7	X1	C-6	C26	C-5	C51	E-2		
WIRE4	E-2	X2	E-4	C37	E-6	C52	B-2		

ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
A MAIN P.C.B. (FOIL SIDE)									
IC1	C-3	Z12	E-5	R2	C-3	R46	C-4	C8	C-7
IC2	C-7	Z13	E-4	R3	D-7	R47	C-4	C9	C-7
IC3	B-5	Z14	E-4	R4	B-3	R48	C-4	C13	C-6
IC4	D-5	Z15	D-4	R5	C-3	R49	B-5	C14	C-7
IC6	B-4	Z16	D-4	R6	C-3	R50	D-4	C15	C-7
IC8	D-3	Z17	D-7	R7	C-3	R51	D-4	C16	C-6
IC10	E3	Z18	D-7	R8	B-2	R52	E-7	C17	B-6
IC11	D-4	Z19	D-7	R9	A-2	R53	E-7	C19	C-6
IC12	D-6	Z20	B-7	R10	C-6	R54	E-7	C20	E-3
IC13	B-7	Z21	B-7	R11	B-6	R55	E-7	C21	E-3
Q1	B-6	Z22	B-7	R12	B-6	R56	E-7	C22	E-3
Q2	D-6	Z23	D-2	R13	C-6	R57	E-7	C23	E-3
Q3	B-2	Z24	D-2	R14	B-7	R58	E-7	C24	E-3
Q4	A-5	Z25	E-2	R15	D-6	R59	E-7	C25	E-2
Q5	B-8	Z26	E-2	R16	D-6	R60	D-7	C27	D-4
Q6	B-8	Z27	E-3	R17	C-6	R61	D-7	C28	D-5
Q7	C-6	Z28	A-3	R18	A-5	R62	D-7	C29	D-5
D2	C-6	Z29	A-3	R19	B-7	R63	D-7	C30	E-5
D3	D-6	Z30	A-3	R20	D-6	R64	A-5	C32	A-4
D4	C-6	Z31	A-3	R21	B-7	R65	B-1	C33	C-6
D8	A-6	Z32	B-6	R22	B-7	R66	B-1	C34	A-6
D9	A-6	Z33	C-4	R24	B-6	R67	B-6	C35	A-7
D10	E-2	Z34	C-4	R25	B-3	R68	B-1	C38	A-4
D11	E-2	Z35	C-4	R26	B-3	R69	B-8	C39	D-3
D12	E-2	Z36	B-5	R27	B-3	R70	B-1	C42	B-3
D13	E-2	Z37	B-6	R28	C-6	R71	B-7	C43	B-3
D14	E-2	Z38	B-7	R29	C-6	R72	B-7	C44	B-3
D15	E-2	Z39	D-2	R30	E-3	R73	D-7	C45	B-3
D16	E-2	Z40	D-2	R31	B-2	R74	C-6	C46	B-3
D17	E-2	Z41	B-6	R32	B-1	R75	B-7	C47	B-3
Z1	C-6	Z42	B6	R34	D-7	R76	B-6	C48	D-3
Z2	C-6	Z43	D-4	R35	D-7	R77	B-5	C49	D-3
Z3	C-6	Z44	D-4	R36	D-6	R78	B-5	C54	C-7
Z4	B-6	Z46	B-4	R38	D-7	R79	B-6	C55	D-6
Z5	B-7	Z47	B-4	R39	D-7	R80	B-6	C56	B-2
Z6	E-5	L1	B-2	R40	A-3	R81	A-2	C57	D-4
Z7	E-5	L2	B-2	R41	C-4	R82	A-2	C58	D-4
Z8	E-5	L3	A-2	R42	C-4	R83	D-4	C59	C-1
Z9	E-5	L4	A-2	R43	A-4	C1	D-7	JP5	C-6
Z10	E-4	L5	A-2	R44	A-4	C2	D-7		
Z11	E-5	R1	D-7	R45	C-4	C3	D-7		

A MAIN P.C.B. (FOIL SIDE)



(SXPG234011 [except(P,PY)])
(SXPG234021 [P,PY])

A

B

C

D

E

F

1

B FAJ P.C.B.

2

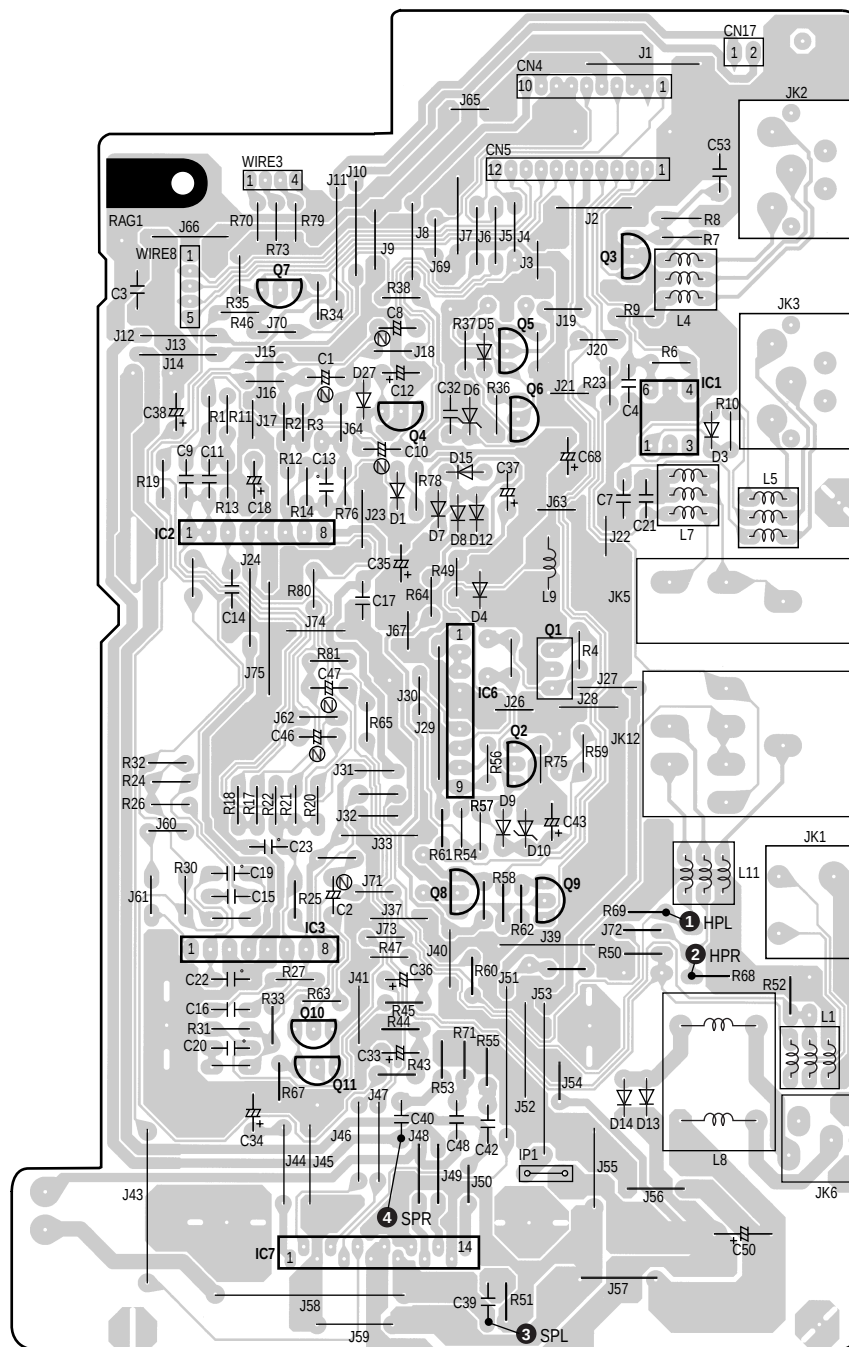
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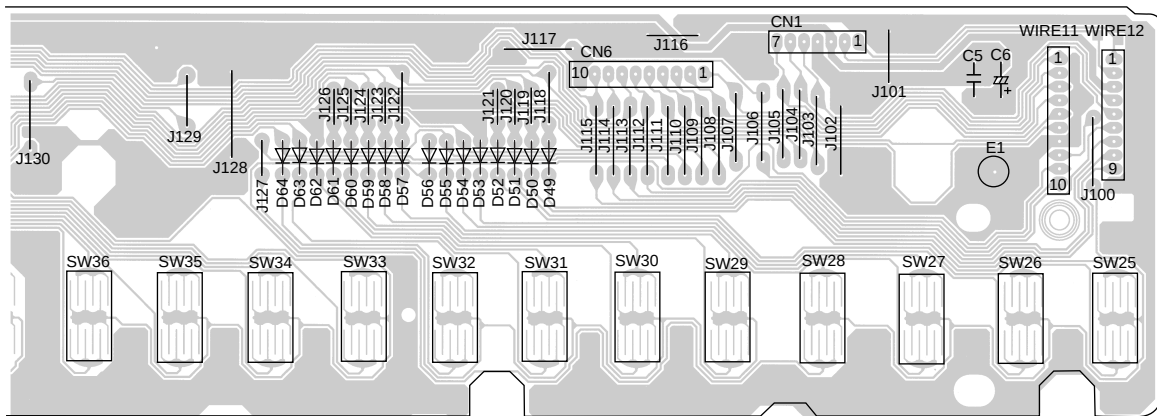
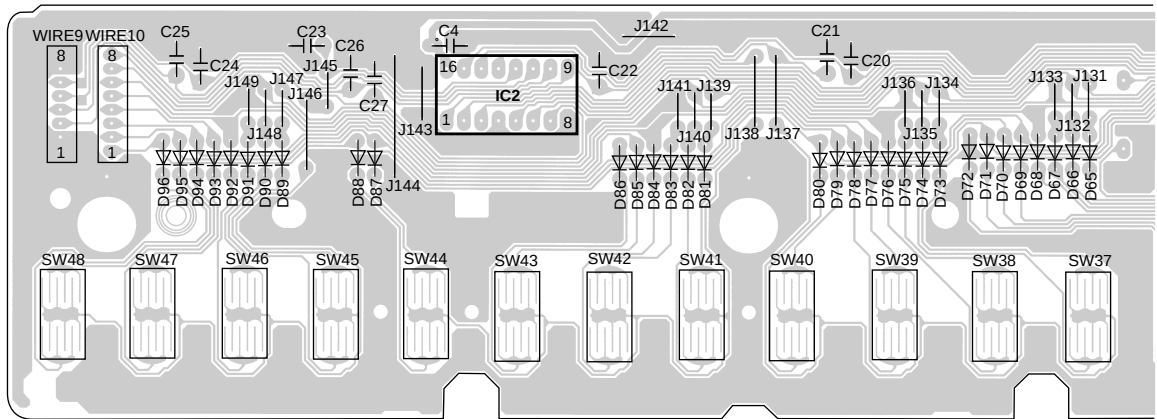


(SXPG234111)

ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
B FAJ P.C.B.									
IC1	D-3	CN5	D-2	R24	B-5	R62	C-5	C18	B-3
IC2	B-3	CN17	D-1	R25	B-5	R63	C-6	C19	B-5
IC3	B-5	WIRE3	B-2	R26	B-5	R64	C-4	C20	B-6
IC6	C-4	WIRE8	B-2	R27	B-5	R65	C-4	C21	D-3
IC7	C-7	L1	E-6	R30	B-5	R67	B-6	C22	B-5
Q1	D-4	L4	D-2	R31	B-6	R68	D-5	C23	B-5
Q2	C-4	L5	E-3	R32	B-5	R69	D-5	C32	C-3
Q3	D-2	L7	D-3	R33	B-6	R70	B-2	C33	C-6
Q4	C-3	L8	D-6	R34	C-2	R71	C-6	C34	B-6
Q5	C-3	L9	D-4	R35	B-2	R73	B-2	C35	C-4
Q6	C-3	L11	D-5	R36	C-3	R75	D-4	C36	C-5
Q7	B-2	R1	B-3	R37	C-3	R76	C-3	C37	C-3
Q8	C-5	R2	B-3	R38	C-2	R78	C-3	C38	B-3
Q9	D-5	R3	C-3	R43	C-6	R79	B-2	C39	C-7
Q10	C-6	R4	D-4	R44	C-6	R80	C-4	C40	C-6
Q11	C-6	R6	D-3	R45	C-6	R81	C-4	C42	C-6
D1	C-3	R7	D-2	R46	B-3	C1	C-3	C43	D-5
D3	D-3	R8	D-2	R47	C-5	C2	C-5	C46	C-4
D4	C-4	R9	D-2	R49	C-4	C3	B-2	C47	C-4
D5	C-3	R10	D-3	R50	D-5	C4	D-3	C48	C-6
D6	C-3	R11	B-3	R51	C-7	C7	D-3	C50	D-6
D7	C-3	R12	B-3	R52	E-6	C8	C-3	C53	D-2
D8	C-3	R13	B-3	R53	C-6	C9	B-3	C68	D-3
D9	C-5	R14	C-3	R54	C-5	C10	C-3	IP1	D-6
D10	C-5	R17	B-5	R55	C-6	C11	B-3	JK1	E-5
D12	C-3	R18	B-5	R56	C-5	C12	C-3	JK2	E-5
D13	D-6	R19	B-3	R57	C-5	C13	C-3	JK3	E-3
D14	D-6	R20	C-5	R58	C-5	C14	B-4	JK5	D-4
D15	C-3	R21	B-5	R59	D-4	C15	B-5	JK6	E-6
D27	C-3	R22	B-5	R60	C-5	C16	B-6	JK12	D-4
CN4	D2	R23	D-3	R61	C-5	C17	C-4		

D MKB2 P.C.B.

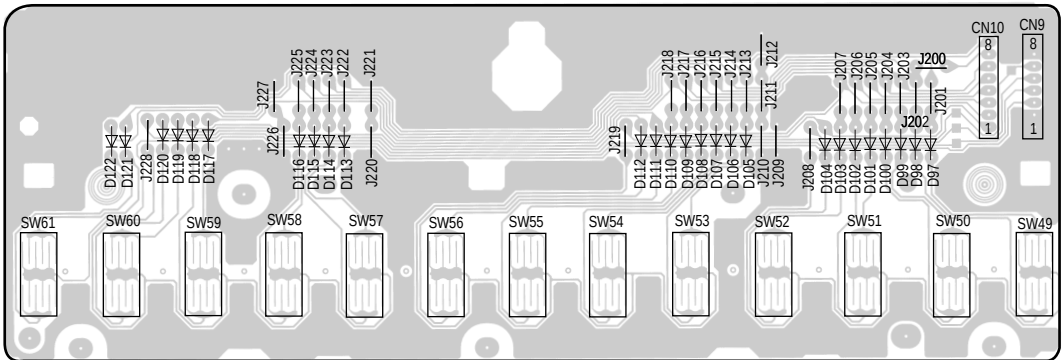


(SXPG234311)

ELECTRICAL PARTS LOCATION

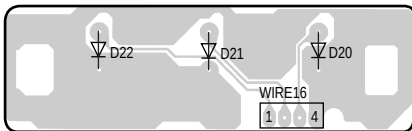
Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
D MKB2 P.C.B.									
IC2	C-2	D66	F-2	D84	D-2	WIRE12	F-3	SW31	C-4
D49	C-4	D67	F-2	D85	D-2	C4	C-1	SW32	C-4
D50	C-4	D68	F-2	D86	D-2	C5	E-3	SW33	C-4
D51	C-4	D69	E-2	D87	C-2	C6	E-3	SW34	B-4
D52	C-4	D70	E-2	D88	C-2	C20	E-1	SW35	B-4
D53	C-4	D71	E-2	D89	B-2	C21	E-1	SW36	A-4
D54	C-4	D72	E-2	D90	B-2	C22	D-2	SW37	F-2
D55	C-4	D73	E-2	D91	B-2	C23	B-1	SW38	E-2
D56	C-4	D74	E-2	D92	B-2	C24	B-2	SW39	E-2
D57	C-4	D75	E-2	D93	B-2	C25	B-2	SW40	D-2
D58	C-4	D76	E-2	D94	B-2	C26	B-2	SW41	D-2
D59	C-4	D77	E-2	D95	B-2	C27	B-2	SW42	D-2
D60	B-4	D78	E-2	D96	B-2	SW25	F-4	SW43	C-2
D61	B-4	D79	E-2	CN1	D-3	SW26	E-4	SW44	C-2
D62	B-4	D80	E-2	CN6	D-3	SW27	E-4	SW45	B-2
D63	B-4	D81	D-2	WIRE9	A-1	SW28	E-4	SW46	B-2
D64	B-4	D82	D-2	WIRE10	A-1	SW29	D-4	SW47	B-2
D65	F-2	D83	D-2	WIRE11	F-3	SW30	D-4	SW48	A-2

E MKB3 P.C.B.



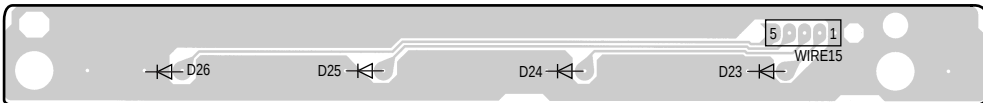
(SXPG234411)

F BLED P.C.B.



(SXPG234111)

G RLED P.C.B.



(SXPG234111)

ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
E MKB3 P.C.B.									
D97	E-2	D106	D-2	D115	B-2	CN10	E-1	SW57	C-2
D98	E-2	D107	D-2	D116	B-2	SW49	F-2	SW58	B-2
D99	E-2	D108	D-2	D117	B-2	SW50	E-2	SW59	B-2
D100	E-2	D109	D-2	D118	B-2	SW51	E-2	SW60	B-2
D101	E-2	D110	D-2	D119	B-2	SW52	D-2	SW61	A-2
D102	E-2	D111	D-2	D120	B-2	SW53	D-2		
D103	E-2	D112	D-2	D121	B-2	SW54	D-2		
D104	E-2	D113	B-2	D122	A-2	SW55	C-2		
D105	D-2	D114	B-2	CN9	E-1	SW56	C-2		

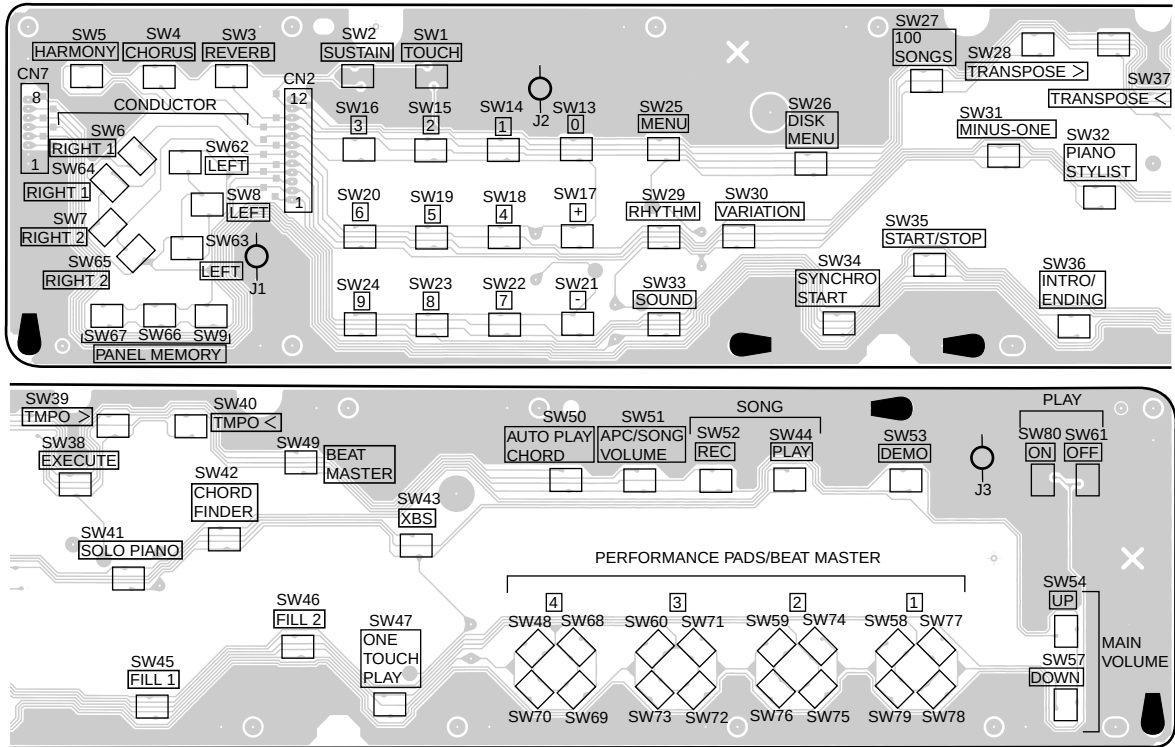
ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
F BLED P.C.B.							
D20	B-4	D21	B-4	D22	A-4	WIRE16	B-4

ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
G RLED P.C.B.									
D23	D-5	D24	C-5	D25	C-5	D26	B-5	WIRE15	E-5

H CP P.C.B.



(SXPG234811)

ELECTRICAL PARTS LOCATION

Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.	Ref.No.	Lo.No.
H CP P.C.B.									
CN2	B-2	SW18	C-2	SW34	E-2	SW51	D-3	SW69	C-4
CN7	A-2	SW19	C-2	SW35	E-2	SW52	D-3	SW70	C-4
SW1	C-1	SW20	C-2	SW36	F-2	SW53	E-3	SW71	D-4
SW2	C-1	SW21	C-2	SW38	A-3	SW54	F-4	SW72	D-4
SW3	B-1	SW22	C-2	SW39	A-3	SW57	F-4	SW73	D-4
SW4	B-1	SW23	C-2	SW40	B-3	SW58	E-4	SW74	E-4
SW5	A-1	SW24	C-2	SW41	B-4	SW59	D-4	SW75	E-4
SW6	A-2	SW25	D-2	SW42	B-3	SW60	D-4	SW76	D-4
SW7	A-2	SW26	D-2	SW43	C-3	SW61	F-3	SW77	E-4
SW8	B-2	SW27	E-1	SW44	D-3	SW62	B-2	SW78	E-4
SW9	B-3	SW28	E-1	SW45	B-4	SW63	B-2	SW79	E-4
SW13	C-2	SW29	D-2	SW46	B-4	SW64	A-2	SW80	F-3
SW14	C-2	SW30	D-2	SW47	C-4	SW65	A-2		
SW15	C-2	SW31	E-2	SW48	C-4	SW66	B-3		
SW16	C-2	SW32	F-2	SW49	B-3	SW67	A-3		
SW17	C-2	SW33	D-2	SW50	C-3	SW68	C-4		